

TRANSACTIONS

of the

American Philosophical Society

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The Coppers of the Northwest Coast Indians: Their Origin, Development, and Possible Antecedents

Carol F. Jopling

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Carol F. Jopling

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Preface

A number of questions pertaining to the Coppers of the Northwest Coast Indians remain unanswered although they have been the subject of various investigations (Keithahn 1964; Lévi-Strauss 1975). This study is concerned with two principal issues: 1) The question of pre- or post-contact origin. Did the influx of European trade copper, especially copper sheathing on ships, provide the impetus for the emergence of Coppers or were examples made of native copper in existence before contact? 2) Regardless of time of origin, is there an explanation for the unique form of the Copper?

The investigation of these problems was conducted with several hypotheses in mind, including: 1) A few Coppers made of native copper existed before contact, but the majority were made of trade copper. 2) The form of the Copper is ancient, possibly Asiatic in origin. The native copper origin was assumed because Coppers were so firmly established among four societies (less so among the Bella Coola) that they seem to evidence an ancient tradition. But on the basis of the variation in size, design, and quality of the Coppers themselves, it was further assumed that the introduction of trade copper stimulated an increase in the production of Coppers which, in turn, may have changed their meanings and functions.

A presumed connection with Asia is based on previous studies which revealed relationships between Haida and Tlingit and Chinese art of the Shang and Eastern Chou period (Badner 1966, 1972; Heine-Geldern 1960, 1972; Inverarity 1972; Lévi-Strauss 1975) and also on the visual or conceptual resemblance of Coppers to a few specific objects. In the last case, the assumption also is based on the following points pertaining to the creation and/or acceptance of novel forms.

First, it has long been assumed that maintenance of social stability is an overriding reason for the persistence of conventional art forms among peoples in non-literate societies. Assuming further that change more often results from external stimulus, relative isolation must promote long persistence of traditional forms and mitigate against the emergence of novel ones. Second, recent investigations of vision (Marr 1982) as well as older studies of social change (Barnett 1963) reveal that recognition is crucial to the acceptance of novel forms. That is, newly introduced forms tend to be accepted by recipient perceivers when there is congruence with familiar existing natural or man-made forms. Indeed, people may be unable to perceive (in the sense of conscious perception) and interpret novel images without such congruence. Examples of

successful incorporated forms usually fit preexisting concepts, patterns, or formal structures. For these reasons it seems logical to assume that Coppers, perhaps inspired by the influx of trade copper, evolved from one or more ancient forms, and furthermore, may be skeuomorphs of objects made of a different material.

Besides the questions of origin, Coppers also offer a singular opportunity to examine a "thing"—a prime object in Kubler's terms (1962)—and the process of its development in context. According to Kubler, prime objects (and the replicas and eventual debasements of themselves they inspire) denote principal inventions. "Prime numbers have no divisors other than themselves and infinity; prime objects likewise resist decomposition . . . Their character as primes is not explained by their antecedents and their order in history is enigmatic" (Ibid:39). The extent of Northwest Coast historical and ethnographic documentary evidence provided opportunity for exploring the process of development of Coppers—emblematic objects which played a large role in five Northwest Coast societies.

Chapter I provides the essential background information for the arguments that follow, including descriptions of the Coppers themselves and their variations according to type and society, the general geographical and social characteristics of the Northwest Coast area, the specific mythological connotations of copper, and the specific use and meaning of Coppers at the time of their greatest significance in each of the five societies.

The possible time of origin of Coppers and the history of their early development are the subjects of Chapter II. These two problems were pursued in stages. For example, when and where was a Copper first seen by Europeans? What did it look like and what were its functions? What European copper objects were traded? Could they have inspired or led to the invention of Coppers?

Chapter III deals specifically with the question of the use of native copper. To resolve this issue a majority of Coppers in museum collections were examined, measured, and photographed¹; and metallurgical analysis was undertaken. The original assumption that x-ray fluorescence would be sufficiently diagnostic proved to be erroneous; therefore

¹Most of the Coppers studied, as well as related objects, were examined and often photographed in many collections including those listed below, some of which also provided photographs. Photographs were also obtained from dealers and private collectors:

In the United States, American Museum of Natural History; Field Museum; Milwaukee Public Museum; Museum of the American Indian; Natural History Museum, Princeton; Portland Art Museum; Sheldon Art Museum; Smithsonian Institution, Natural History Museum; Thomas Burke Memorial and Washington State Museum; in Canada, British Columbia Provincial Museum; Campbell River Museum; Centennial Museum; National Museum of Man; University of British Columbia Museum; and the British Museum.

Informal interviews were conducted with residents at various sites visited in 1975, including Ketchikan, Wrangell, Haines, Sitka, and the various Gitksan villages near Hazelton on the Skeena river.

fewer Coppers were analyzed than originally anticipated, because of possible destructive effects. Nevertheless, the results point toward trade copper as the material of all known existing Coppers, an assessment that is compatible with the historical data.

The search for an antecedent is discussed in Chapter IV. It was directed toward finding objects with formal congruence among archaeological artifacts of the Northwest Coast and adjacent areas, and also pertinent archaeological and ethnographic materials from Asia, given the prehistoric evidence provided by Chard (1974), Inverarity (1972), and Lévi-Strauss (1975) among others. Though less certain and more controversial than the metallurgical evidence, the finding of a complex of objects such as chief's or shaman's mantle and chief's copper collar as possible antecedents of Coppers is both formally and conceptually consistent with the ethnological context.

The general purpose of the research was to investigate the process of development of a material object of major social significance. Coppers were chosen initially because of their unique form and also because they were important symbolic instruments in each of the five societies which adopted them. The specific purpose was to prove, if possible, the pre- or post-contact invention of Coppers.



1. Tlingit Copper 30 1/2 x 20 in. Aquired 1916. (University Museum, University of Pa. NA 4915)

I. The Use and Meaning of Coppers in the Period Between 1860–1920

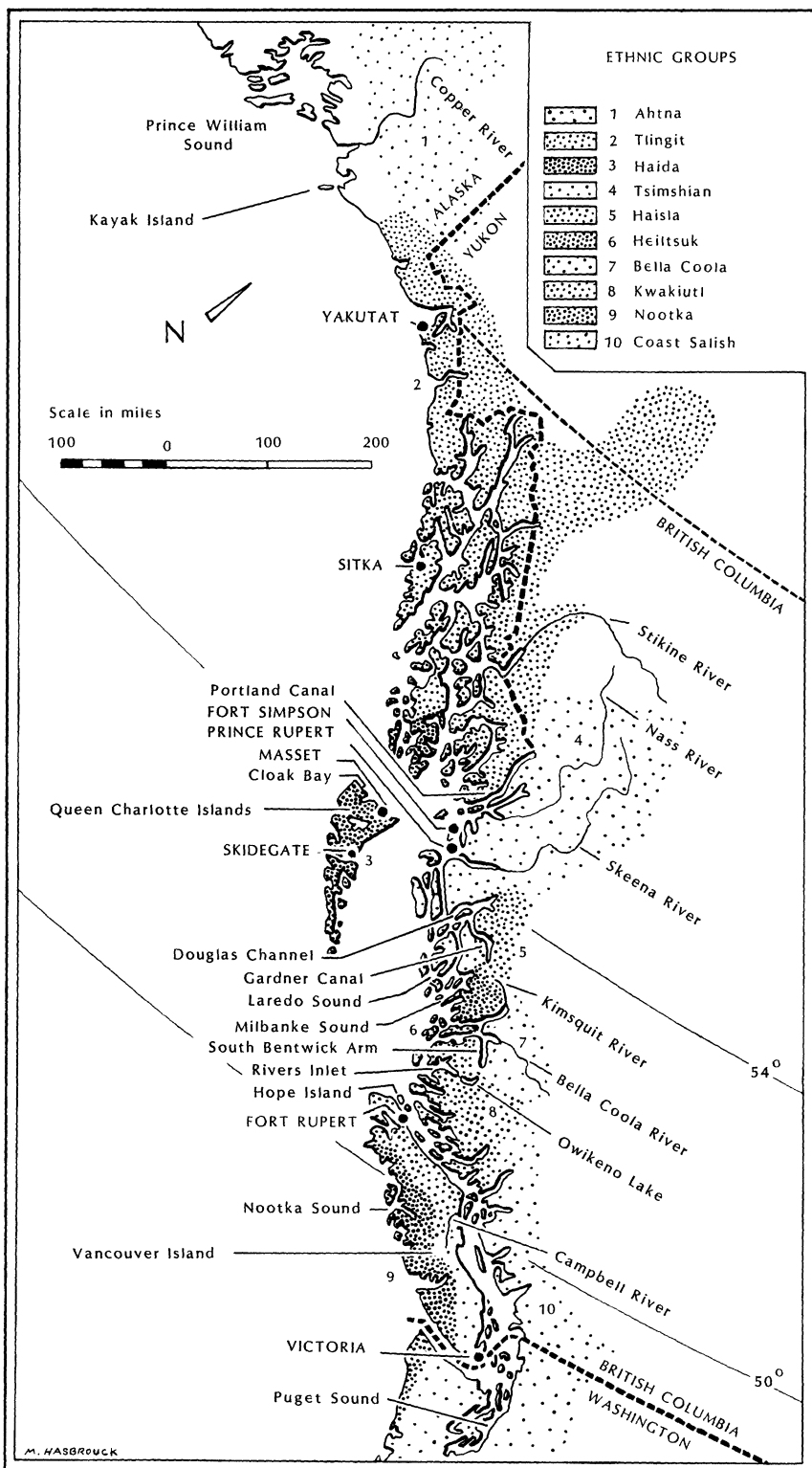
The main purpose of this book is to investigate the origin and the early history and development of Coppers. Essential to the analysis is an understanding of the uses and meanings of Coppers at the time of their greatest significance which seems to have been at the end of the nineteenth and the beginning of the twentieth centuries. Descriptions of use and interpretations of meaning are based primarily on references to copper and Coppers in the myths and other data collected by Swanton, Boas, and McIlwraith on the five Northwest Coast societies who possessed Coppers, the Haida, Tlingit, Tsimshian, Kwakiutl, and Bella Coola (Fig. 2). More recent sources have also been consulted for additional supporting information. Moreover, the Coppers themselves are fundamental to the argument. This chapter includes, therefore: 1) A comparative examination of the physical properties of Coppers: their form, design, and the treatment of the metal; 2) Background information on the North West Coast; 3) The meanings attached to the substance of copper according to the myths; and 4) The uses and meanings of Coppers in the context of each of the five societies in the period between 1860–1920.

Coppers

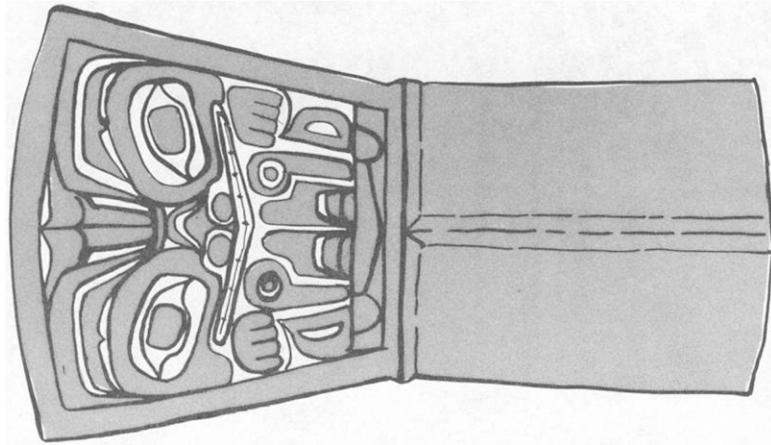
A Copper is often described as a flat, shield-shaped object made of copper, its distinctive shape comprised of two parts—a flaring, trapezoidal upper portion and a rectangular lower section—which are united by the horizontal cross bar of a raised T form, whose vertical part bisects the lower rectangle. The basic form is common to all Northwest Coast Coppers, but in other respects they vary according to culture in size, technology, and quality of execution.

The corpus of 328 Coppers examined here probably represents a majority but not all existing Coppers. Distinctions between Coppers of the Tlingit, Haida, and Tsimshian (Figs. 3–5) and between those of the Kwakiutl and Bella Coola are difficult to discern (Figs. 6–7), but differences between northern and southern Coppers are clearly visible (Figs. 8–9).

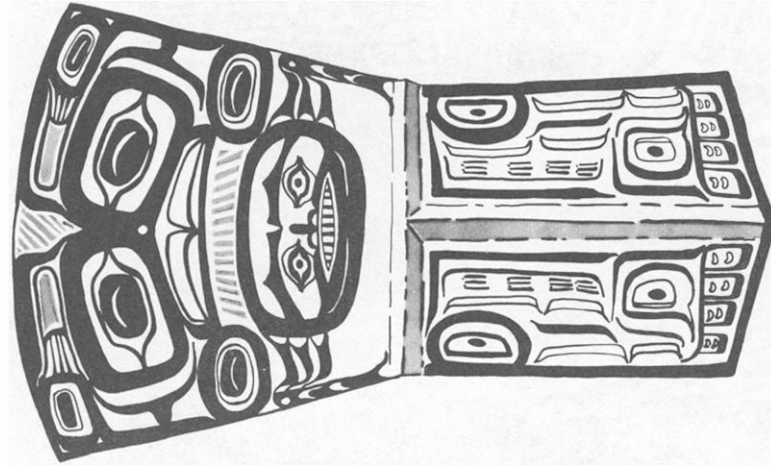
For comparative purposes, the Coppers have been classified into four sizes and four types within northern and southern regions. Though somewhat arbitrary, the sizes reflect native categories of the Yakutat Tlingit described by Davison, according to DeLaguna (1972:353–54):



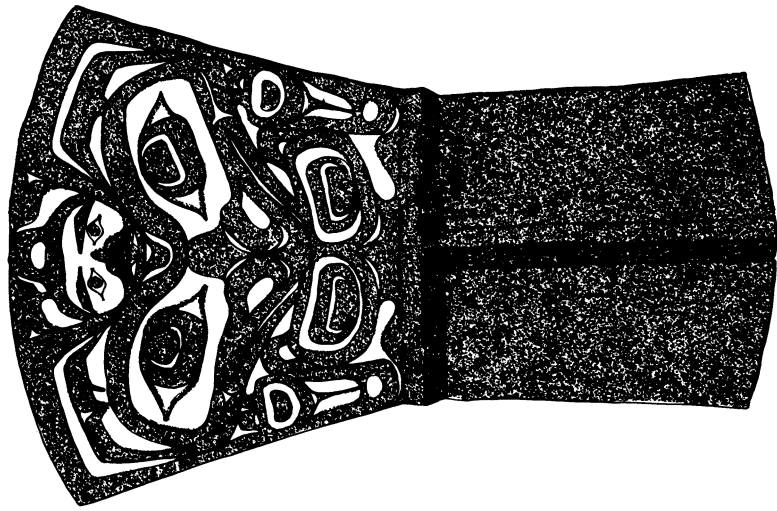
2. Map of Northwest Coast Area Showing Location of Peoples and Major Points of Interest



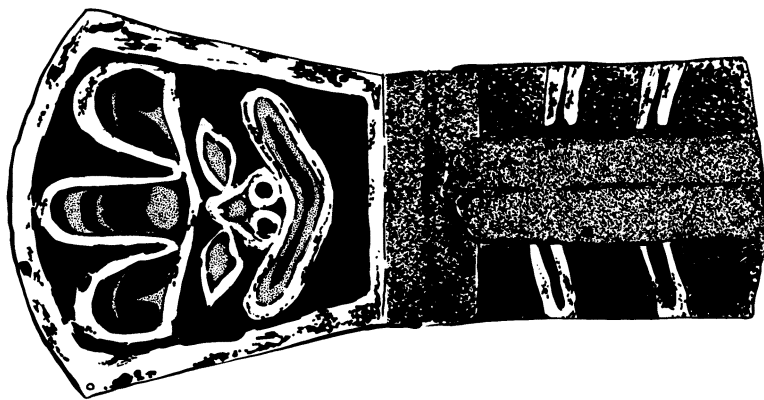
3. Haida Copper (drawing) 91 × 52 cm. "Design in black showing a seamounter with bear's head and forelegs and body of killer whale which is indicated by two pins between the forelegs of the bear" (Boas 1897:342 Fig. 2) (Berlin, Museum für Völkerkunde IV/A988)



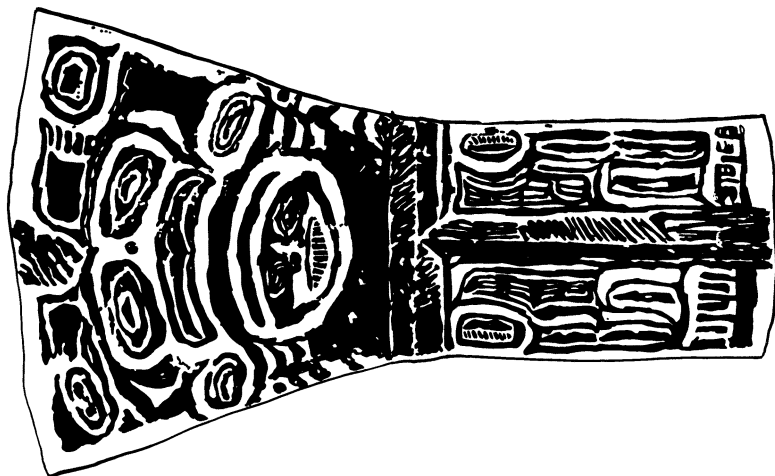
4. Tlingit Copper (drawing). According to Boas, the painting on this Copper represents the Hawk (1897:343). (Smithsonian 20778)



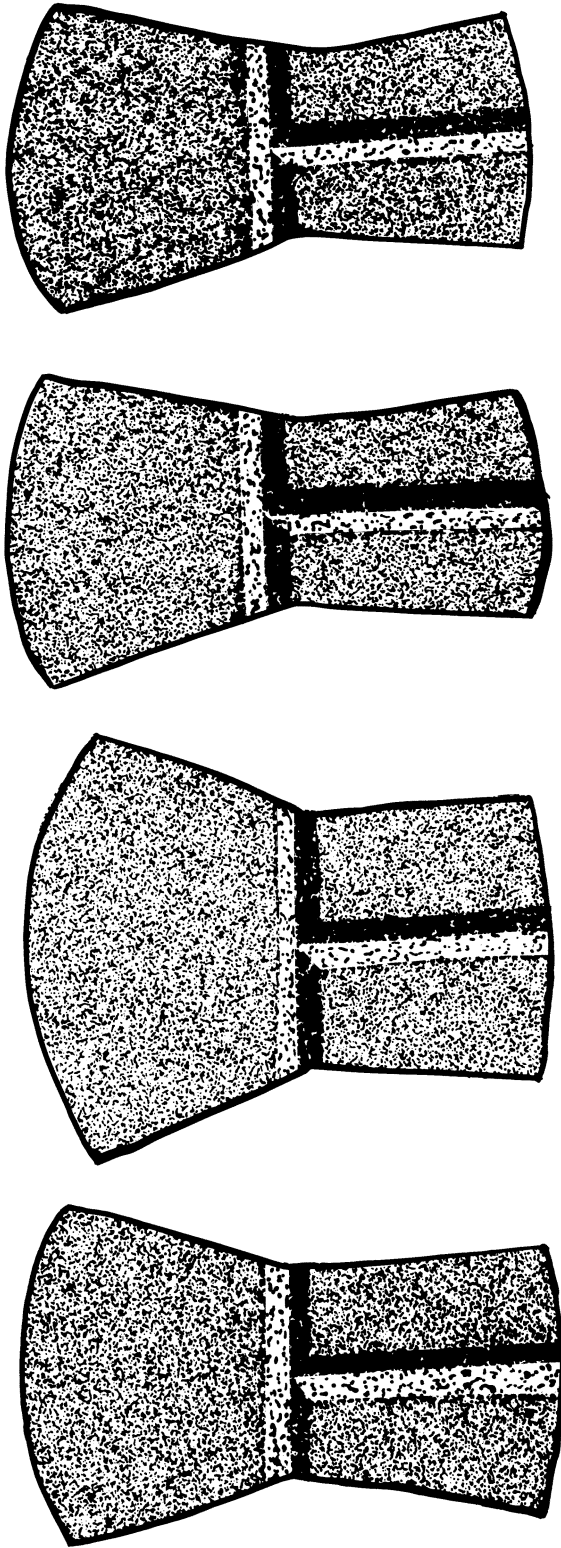
5. Tsimshian Copper (drawing). 109.2 × 65.5 cm. Nass River. (Royal Ontario Museum HN 760 927.37.81)



6. Kwakiutl Copper (drawing). 22 in long. (University of British Columbia Museum UBC A17157)



7. Bella Coola Copper (drawing). 74.5 cm long. Acquired 1911 from Piper. (Munich Staatsmuseum für Völkerkunde 11.447)



8. Northern Copper Typology:

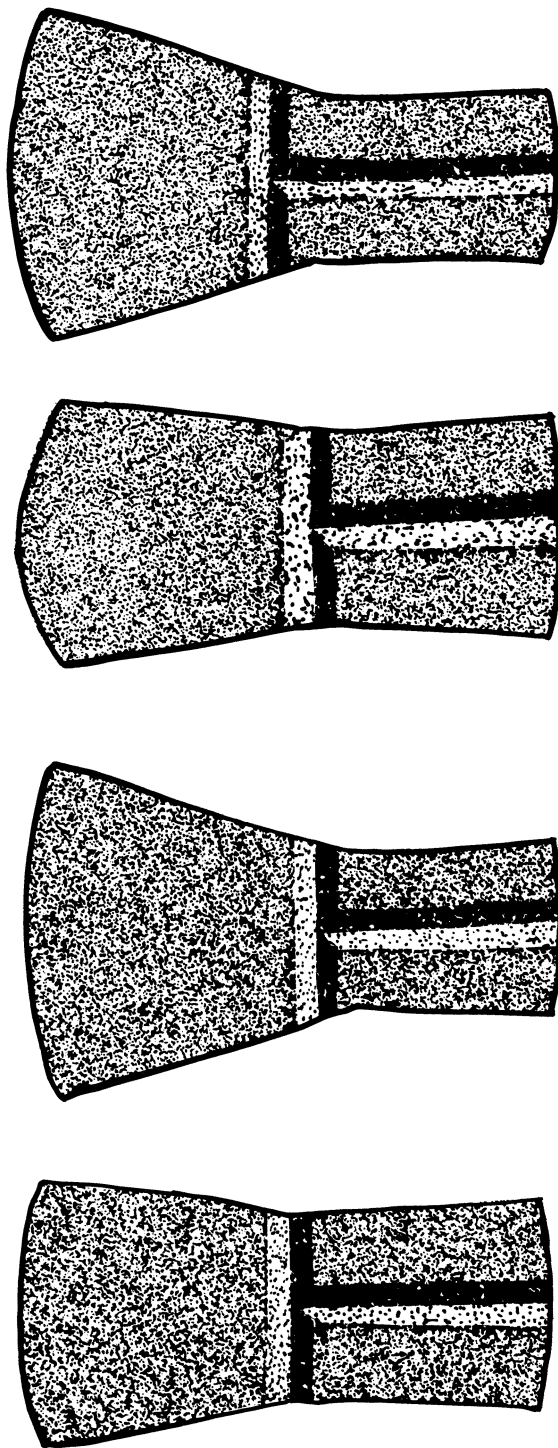
Type A: T intersects at midpoint; width to length proportion 2-3, 1-2.

Type B: T intersects at midpoint, width to length: 5-7, 3-4, 6-7.

Type C: T intersects above midpoint, width to length same as A.

Type D: T intersects below midpoint, width to length same as A.

These categories have no purpose beyond identifying variable shape.



9. Southern Copper Typology:

Type A: T intersects at midpoint, upper section fairly straight-sided, width (top) to width (lower half) proportions 4-3, 3-2.

Type B: Fan-shaped upper section. T at midpoint or below. Width at top to width at T 5-2, 5-3, 2-1.

Type C: Upper portion straight-sided. T intersects below midpoint. Width to width same as Type A.

Type D: Fan-shaped upper portion. T intersects above midpoint. Width to width like Type B.

CLASSIFICATION OF COPPERS ACCORDING TO TYPE AND CULTURE

	<i>Haida</i>	<i>Tlingit</i>	<i>Tsimshian</i>	<i>Kwakiutl</i>	<i>Bella Coola</i>	<i>NP*</i>
Large						
A	10	5	6	11	1	6
B	11	5	1	12	4	4
C	1		1	1		
D	5			1		
Medium						
A	1			3		1
B				2		
C		1	1			1
D						
Small						
A	7	4	1	4	2	4
B	3	1		4	2	3
C	7	1	1	1		2
D	3	2				4
Ornamental						
A	11	15	3	6		4
B	29	2	3	32		7
C	1	1		1	1	4
D	10	1		43		2

Northern Coppers:

Large: 24 or more inches,
3 mm or more thick
Medium: 15-20 in, 2-3 mm thick
Small: 5-15 inches, varied thickness
Ornamental: 1-5 inches, 1-2 mm thick

Southern Coppers

20-30 inches long,
2-3 mm thick
10-20 inches long, 2-3 mm
1-5 inches, varied thickness
1-4 inches, 1-2 mm thick

*Lacking provenance

"Coppers were made in three standard sizes although there were four terms: the smallest a baby 'copper' was about hand length, a second the length of the forearm to the elbow, and the third from the fingertips of the outstretched hand to the averted chin. The last size was worth 8 or 10 slaves." According to available information the fourth size, ornamental Coppers (two to three inches long) were worn as personal adornment on clothing or as earrings by rich people and did not figure in potlatch exchange, but their significance was greater than mere adornment. Important ceremonies were conducted for the ear-piercing of the children of high-ranking individuals, who were privileged to wear earrings: among the Kwakiutl, four on each ear for the highest ranked.

Northern Coppers are ornamented on their upper sections (occasionally the lower) in the characteristic northern style with fine stylized representations of animals comparable to those found on houses, boxes, and other ceremonial and useful paraphernalia. Kwakiutl and Bella Coola Coppers are decorated with crude designs of animal or human-like figures and other motifs which are painted or scratched into the surface coating on both upper and lower portions. Stylistic differences are not only a matter of decoration but also of outline, proportion, and



10. Haida Copper, approximately 36 × 24 in. Lt. G. T. Emmons purchase 1909. (American Museum of Natural History 16. 1404)

variation in treatment of the metal and in method of design application. These differences are specific to Coppers yet are generally consistent with other art forms in each culture. Coppers also differ within cultures, particularly in quality of workmanship. Such variations are of interest since they may reflect artistic competence and/or social value.

The numerous Haida Coppers usually have certain technological features in common: the upper portion is often convex; in some cases the center bulges out from a one- to two-inch border almost as much as the T is raised from its surrounding area (Fig. 10). Some small Coppers have a circular bulge.¹ The T form, commonly triangular in profile, was made by hammering a copper sheet in a mold² or formed by bending the

¹A small (8.2 × 5.6 cm) Copper, finely made with a Killer Whale motif incised on round bulge of the upper portion, was collected by C. F. Newcombe at Skidegate, 1905 (National Museum of Man VII-B-960).

²A possible wooden mold for a Copper was seen at the American Museum of Natural History where it was recorded as a "cover." Collected by George Hunt.

sheet over the edge of a box or other straight edge.³

Some T's are more crudely made and look as if a stick had been placed at the back of the copper and hammered to form a narrow rounded ridge on the other side. Deans described a technique which used a piece of copper rather than a stick (1885:9, see below). Triangular T's are found on large heavy Coppers, rounded ones on Coppers made of thin sheet metal with some exceptions. In either case, the T serves to strengthen and stiffen the plate.

The majority of Haida Coppers are decorated on the upper portion with motifs consisting primarily of crest animals: eagle, bear, killer whale, and raven. Often following Haida convention, these motifs are created according to a form line design. The outline was incised into the metal and the forms then filled in with paint in a mode similar to the treatment of boxes (Holm 1965). In a second method resulting in designs that resemble stenciling, the surface was covered entirely with black paint or a mixture of pitch and oil and an animal face was then created by scraping off parts of the surface to reveal the copper beneath. A third technique consists of engraving a linear outline into the metal through the surface cover. In a fourth, the design was painted on. These methods are variously combined. Haida Coppers range from very crude to extremely fine examples. On some small Coppers the designs as well as the method of handling copper are sometimes very sketchy. A rudimentary bear's face is sketched through the coating of pitch and oil or paint on a few examples. Occasionally the eyes and nose are convex *repoussé* protuberances and the mouth a bulging smile impressed into the metal—a face as much human as bear.

Tlingit Coppers are less numerous and less varied than Haida Coppers, and there are very few crudely made examples. They are proportionately longer and somewhat narrower and less square than Haida Coppers. Frequently, the curve of the top is flat or angular and the sides slope gradually to the base which has a V-shaped edge at times. The bulges on the upper section are less pronounced. Stylized stencil-like representations of bear, hawk/eagle, sea-grizzly bear, and raven occur on the top, but the incising technique of the Haida was evidently not used by the Tlingit.⁴

Although it is difficult to distinguish large Haida and Tsimshian Coppers by their shape, Tsimshian examples are notable for the clarity

³Gerry Marks, a Haida well known for silver jewelry design, is one of several artists who made Coppers for a Japanese museum. His picture appears in Ulli Steltzer's *Indian Artists at Work* (Vancouver, Douglas, 1976:18–19). During an interview he explained the various methods of fabricating Coppers, in particular the process of creating the T form.

⁴Particularly fine and often illustrated Tlingit Coppers include one collected by G. T. Emmons at the Museum of the American Indian (MA110/1783), and another at the British Museum (1900/7-24/1) which was obtained by the agents of the Hudson's Bay Co. from a member of the Stikeen (Tlingit) tribe at Fort Simpson. According to Chief Negh-Hum-gee-sac, it was found on an island in Alaska by Sitka Indians (G. M. Dalton, *Journal of the Royal Anthropological Institute* 30 [1900]:47).

of their designs. Some design elements are subordinated to others and spaced sufficiently to make them clear and readable. Stenciling was the more common decorative technique for the representations of wolf, eagle, killer whale, and bear, but incising and painting were also used.⁵ Thus, differences among the Coppers of the three northern people are visible, but they are generally outweighed by similarities which point to a certain standardization of style, technique, and motif.

Kwakiutl Coppers are easily distinguished from northern Coppers because of their smaller size, narrower shape, and assemblage technology. The majority are made of multiple pieces of thin sheets of copper riveted together, but some are constructed of a single sheet. They are long and narrow, usually lack the convex bulge on the upper portion, and generally have a crude appearance. The T form, which is a prominent fold in the metal of northern Coppers, is often a separate piece, shallowly triangular or flattened in profile, sometimes applied on top of a single copper sheet, and sometimes serving as the spine holding together the assemblage of pieces. Northern Coppers, usually made of heavy sheet copper, are finished by hammering along the edges. In contrast, Kwakiutl Coppers, commonly made of thin sheet, have their edges folded to the back, thereby creating a stiff, one-half to one inch border.

Although Kwakiutl techniques of decorating Coppers were similar to those in the north, the results differed. The Kwakiutl favored a very thick coating of paint and pitch into which they outlined a design by scraping through the surface. They rarely incised the metal. Designs were also painted on the surface with graphite or greyish-white paint, which was frequently used to enhance the T form as well. Many designs appear to be renewals or recreations of original motifs. The subjects of motifs—bear, killer whale, raven, beaver, and occasionally human faces—are similar to northern ones, but their crude and rudimentary execution contrasts with northern aesthetic conventions. Kwakiutl Coppers are usually also decorated on the lower section with rib forms, crosses, chevrons, and curvilinear eye-like patterns. In every aspect, they convey an impression of individual personal expression to a greater extent than do northern Coppers.

Bella Coola Coppers resemble Kwakiutl Coppers in proportion and technology, but display a somewhat finer finish and feature a sun motif in addition to the repertoire of animals and humans (Fig. 11). According to McIlwraith, the majority of Bella Coola Coppers are made of commercial metal, the more recent of thin metal, the older ones of heavier and thicker (1948, 1:253).

⁵A well-known Tsimshian Copper (110.7 × 75.8 cm, St. Louis Art Museum 67.219) has an eagle design incised and painted in traditional style on the upper front part. Eye forms have been painted on below in a different style and technique, as has a second eagle in profile on the back. The Copper is said to have come from Fort Rupert and was acquired by James Economos.



11. Bella Coola Copper, 31.6 × 19.7 cm. Purchased from Mrs. Willie Mack at Bella Coola by H. I. Smith 1923. (National Museum of Man VII-D-405)

Certain inferences can be made from this comparison of Coppers. The apparent standardization of Haida, Tlingit, and Tsimshian large Coppers in size, style, and motif seems deliberate. It may have occurred or been reinforced as a result of a few centers of manufacture, either European or Indian. However, distinctions, though somewhat evident in fine details of technique and shape, are clearly visible in the treatment of motifs. Such identifiable differentiation would permit recognition of individual Coppers for their specific value or provenience within established standards, thus possibly encouraging the circulation of large Coppers among northern people and their use as visible records.

In contrast, the Kwakiutl examples appear to be almost different objects. Kwakiutl and Bella Coola Coppers are individualized within broad conventions based primarily on overall configuration, the assemblage or reassemblage of multiple pieces, and a range of motifs. Though similar, they appear less uniform because of their general crudeness.

Moreover, the expressiveness of the designs and the fabrication and treatment of the Coppers seem to imply a process of ritual creation rather than adherence to artistic convention.

The similarities and differences among Coppers are specifically linked with the particular functions they were called upon to fulfill in the differing societies of the five Copper-owning Northwest Coast peoples.

Environmental Conditions

The Tlingit, Haida, Tsimshian, Kwakiutl, and Bella Coola had in common similar subsistence patterns with a certain amount of local specialization. With its waterways, mountainous rocky fjord-like coasts, and dense forest, the area was conducive to coastal and riverine settlements linked with a fishing-sea mammal-hunting economy. Various species of salmon were the primary staple food for all these peoples. Eulachon, molluscs, seal, whales, deer, and wapiti were among the secondary resources, but some were highly localized (Ames 1981:798). Seaweed, berries, crabapples, and other flora were gathered. Land hunting was less common, but the Tlingit, Tsimshian, and Bella Coola hunted mountain goat for hides and horn, marten and beaver for their fur.

Similarities among these people also arose through intercommunication, which included trade, particularly among the northern Haida, Tlingit, and Tsimshian. The striking resemblance of their art and house form is a manifestation of their interrelationships. The Haida, who were without access to eulachon, traded for it on the Nass, where the Niska, Gitksan, and Tsimshian met for the run each spring. Although the Tlingit had their own supply, some joined the trade because eulachon from the Nass were considered superior. From the taller cedars on the Queen Charlotte Islands, the Haida made their specialty, the great canoes, which were valued by Tsimshian and Tlingit. Tlingit, Tsimshian, and Bella Coola traded mountain goat hide and horn, as well as goods obtained from inland tribes, to the Haida and Kwakiutl. Trade patterns were ancient and in some instances extended over long distances, both by water and by land to interior peoples. Intertribal slave raiding also contributed to the intermingling of these cultures (see also Wolf 1982:185). The Southern Kwakiutl (to whom most of the Kwakiutl data apply) also interacted with the northern groups, especially the Haida and Tsimshian, but remained somewhat isolated. The Bella Coola were influenced by the Kwakiutl, especially the neighboring Heiltsuq. These southern peoples resemble each other in social structure, art style, and house form, but differ from the northern peoples.

Cosmologies

Northwest Coast peoples also share certain fundamental beliefs which stem from both archaic concepts and imagery originating in a hunter's economy and technology and ancient shamanic concepts which were

widespread throughout northern Eurasia, characteristic of various Siberian and Arctic belief systems and still extant in some North and South American cultures (Eliade 1974).⁶ They had a spiritual kinship with animals, which were not clearly differentiated from people. In the beginning, when, according to Bella Coola mythology, all lived in the supernatural world, people had the capacity to talk to animals and birds (McIlwraith 1948,1:69). In the Tlingit version of the widespread Raven myth (Krause 1956:180), when Raven brought Sun to the world, people fled into the forest, sea, or mountains to become animals, fish, and birds. At this time or when, as Kwakiutl and Bella Coole myths describe, the first ancestors, wearing bird or animal cloaks, descended to earth from the supernatural world, people lost their ability to communicate with animals, which retained their supernatural state.

The shamanic themes of supernatural encounter, animal-human transformation, everlasting spirits which are reincarnated in bones, the shaman's transcendence of death, and the powers of supernatural knowledge and curing are variably manifested in the art and myth of the five Northwest Coast people. A Haida myth, *Moldy Forehead*, illustrates the point: During a famine a boy is given some dogfish by his mother, but unsatisfied, he wanders off crying. Two people take him in a canoe to a chief's house far away where he is given some food. Following advice given by Rock Woman, he does not eat it, but catches a salmon and cooks it, being sure to put all the bones into the fire. But the chief's son's eye becomes diseased. Moldy Forehead returns to find the salmon's eye rim, and puts it in the fire: the chief's son gets well. Later, Moldy Forehead goes in a canoe to sky country and sees his mother and father building a weir on earth. He swims by his mother and lets her club him. When his mother starts to cut off his head, the knife clicks on the copper necklace he is wearing. She puts him on a clean board on top of the house. After four nights, his head comes out; the salmon skin is washed off by the rain, and he becomes a shaman. When they return the next year salmon come again. A shining one is on top. He tells them not to spear it. Then he makes a spear and catches the salmon. The salmon dies, he too dies; it was his own soul (Swanton 1905c:7-14).

The shamanic experience of moving to the world of spirits and returning again to the human world (reincarnation) referred to in this myth presents the concept of the life cycle. The human spirit is born from the supernatural, dies, and returns to the supernatural world, eventually to be reborn.

Social Structure

The social structure of these five societies differed in particulars, but in general terms they are described as ranked societies with three social

⁶For data on cosmologies, besides the basic ethnologies, and in addition to Eliade, the works of Adams (1969), Goldman (1975), MacDonald (1977), and Vastokas (1974) were consulted.

levels, chiefs, commoners, and slaves, according to the usage of the early ethnographers. These different levels were distinct in their access to prestige, but "individuals had more or less equal access to natural resources" (Ames 1981:789). Coppers were differentially associated with each social level; they were the property of chiefs, mythically attached to commoner shamans, and possibly served as surrogates for slaves in certain ritual situations.

Chiefs were usually the eldest male members of a lineage which claimed relationship to the founding families or ancestors who were identified by animal crests. Rights to chieftainship and to the associated prerogatives of titles and crests which referred to the ancestor spirits were hereditary—that is, held by families claiming descent from founding ancestors—but had to be legitimized by the distribution of property at ceremonies attended by witnessing guests.

Commoners were those without rights to chiefly titles and crests and were usually without property for legitimizing claims. However, Tsimshian social structure permitted the incorporation of commoners into the system and even among the rigidly organized Kwakiutls, where commoners were separated from chiefs (Goldman 1975), a mechanism was found for including them (Drucker and Heizer 1967). Commoners performed the bulk of the work and also served as warriors. The most powerful commoners were shamans who acquired the power to send their spirits between the natural and the supernatural world through an encounter with a supernatural being. Shamans played an important role among the northern peoples, especially the Tlingit, where they could be chiefs, and were "more powerful and influential and more dreaded than those among the Haida" (Swanton 1980b:453).

Slaves were acquired by capture and exchange. Only chiefs could own slaves except among the Bella Coola according to McIlwraith, but by 1920 anyone could own them. They were considered as property and were without rights (Swanton 1905a). Since a person's power was dependent on his relationship to mythical ancestors, slaves, who were deprived of their ancestral home, had no rights (McIlwraith 1948,1:159). Without ancestral prerogatives, Kwakiutl slaves were conceived to be without spirits—like ghosts between life and death.

Slaves participated in the life of the household, performing the drudgery, helping in the acquisition of food, and fighting in warfare. Slaves also served as a medium of exchange. Because of their economic importance, northern groups acquired slaves in trade from the southern (Niblack 1890:252–52). It was profitable to convert perishable or bulky provisions and even blankets into slaves when preparing for a potlatch. A slave's labor added to the store of potlatch goods, and the slave himself was wealth to be given away (Garfield 1930:289–90).

Warfare

According to both early and late nineteenth-century accounts, warfare was common to all Northwest Coast peoples and ranged from a single

killing in a feud to an attack by armed warriors on a village or fortress (Ames 1981:790). The Haida fought more among themselves and with the Tsimshian than with the Tlingit (Swanton 1905b). The Tlingit took advantage of their mainland situation and developed an exploitative trade system with inland tribes analogous to war (Oberg 1973:110). For all the northern peoples as well as the Kwakiutl, warfare, which also consisted of raiding and plundering expeditions, was waged to capture slaves and lineage property. One of the first requirements for a Tlingit potlatch was to capture slaves (Swanton 1908b:162). In Kwakiutl society, raiding activities took place in the fall before the onset of the winter ceremonial season. During this time people seldom left their houses for fear of being killed because warriors on a raid had the right to kill even their relatives. The Kwakiutl were headhunters, and heads as well as booty were the prime objects of their expeditions. The acquisition of certain ritual privileges by murdering their owner in a warring raid or surprise attack increased their value (Boas 1924:425).

Potlatch

Potlatching was conceived within the same ideological framework as warfare, but it is unlikely that it was a replacement (Codere 1950), since the exchange of property was deeply imbedded in the social system (Drucker and Heizer 1967; Goldman 1975). The potlatch, a ceremony which brought together the living and the dead, the spiritual and the earthly, in a drama of life, death, and rebirth was a way to greatness more than war, which was a way to increase the power to give feasts (Swanton 1905a: 155). Potlatches, which occurred among chiefs representing their social groups, were ceremonial feasts at which a large-scale distribution of goods was made to guests by their hosts. Although potlatches differed among all the Northwest Coast peoples, a major reason for their occurrence was the validation of a change in rank of chiefly individuals. The qualified individual who succeeded in amassing sufficient goods to potlatch claimed the position and title. The witnessing of the ceremony by guests who were reciprocated with gifts constituted acknowledgment of the change (Rosman and Rubel 1971:201,205).

Coppers played their primary roles at potlatches. According to Ames, the movement of Coppers through the potlatching system summarized historically the exchange information (1981:799). Some other meanings attributed to Coppers seem related to those attached to the substance of copper.

Meanings Attributed to Copper

It is assumed that the significance attached to the substance of copper was a possible underlying reason for the invention and/or adoption of Coppers. To support this claim the following references to copper from the myths and ethnographic data recorded by Boas, Swanton, and

others are presented as representative of native concepts. Context is indicated whenever possible but the emphasis is on the general similarity of concepts pertaining to copper. The categories into which the references fall are convenient for discussion, but are not intended to reflect those of the Northwest Coast people.

Supernatural Aspects of Copper

In all Northwest Coast societies copper has a mythically established supernatural origin. Sometimes the metal is considered separate from Coppers, sometimes they are combined. Haida myths (one possibly derived from the Tsimshian) postulate a northern location for copper in the area. In one, copper was said to stick out toward the sea from a cliff on a mountain on the south side of Nass inlet. A hero hit it with his sling. When it came down, his mother-in-law became frightened and ordered it to go north (Swanton 1905c:346).

Another myth links copper with a northern and also magical source:

Under a water fall far up a southern affluent of the Stikine river . . . is a cave in which is a natural rock-formation resembling a man. The hands on this figure are ordinarily fingerless; but when an Indian chewed medicine he sometimes found upon it a thumb of pure copper which when hammered out would make a Copper worth ten slaves, a forefinger which would make six . . . (Swanton 1905a:146).

In many myths the discovery of copper was tantamount to an encounter with a supernatural being. Although copper was used only by a chief, myths sometimes portray the discoverer of copper as low in status. In this instance the discovery is comparable to a spiritual encounter of a shaman, who was usually a commoner. In any event, copper symbolically raised the status of those who found it. For example, a Tlingit myth tells of a slave woman and her son who are badly treated by the people of their village and exiled. A spirit comes to the boy saying: "If you see four blue flames on the fire, that's me." Later, making a fire, the boy sees the four blue flames and prays to the supernatural being above. Beneath the ashes he finds four Coppers as big as his fist. Then he and his mother return to the village. They agree to show the chief of the village where the copper is if he calls the boy "a brave" (DeLaguna 1972:899-900).

Themes of transformation are also associated with copper. Among the Tsimshian, salmon is magically transformed into copper, as described in the Tsauda myth when "good" copper is found at the headwaters of the Skeena river.

Our people call this copper "living" copper. They say that spring salmon went up this river, and when they reached the deep water at the upper part of the river, the salmon became copper. Therefore, the Indians know that there was "live" copper in this brook or river (Boas 1916:301).

In another part of the myth, the hero sees a salmon in the water, spears it, and clubs it. When he throws the salmon backward over his shoulder he finds that it is copper. In the night the prince dies because the live copper kills him. His companions throw the copper into the fire and melt it. Then they carry the body of the prince home in their canoe. Tsauda, the Son of the Sun, appears in a shining light and revives the dead man by sprinkling him with the water of life. He says, "as soon as you catch the salmon copper or live Coppers, make a large fire and throw the salmon copper into it. . . . The fumes will not hurt you, but will make you richer than any chief in the whole world; but if you tell these high commands to some of your relatives or friends or to your tribe, you shall become poorer than ever and those to whom you have told my secret shall become rich . . ." (Boas 1916:305). In this myth the theme of transformation is clearly linked with regeneration, which in Northwest Coast ideology was connected with wealth. Furthermore, here as in the previous Tlingit myth, prerogatives to copper are jealously guarded.

Few references to the native metal appear in the myths of the Kwakiutl and Bella Coola; their absence possibly reflects the belief that copper came from the north as well as its relative scarcity in the southern areas. Among both the Kwakiutl and the Bella Coola, Qomoqwa, the undersea deity, is the supernatural source of copper. Both peoples envisage his living in a copper house among a wealth of copper possessions (Boas 1935a:47; McIlwraith 1948, 2:688-90). Copper is also associated with physiological features and substances regarded as powerful in Kwakiutl belief. A myth of the Nimkish people records the descent of the Sun by a copper pole (Boas and Hunt 1906:80-113). The sun is conceived as both natural phenomenon and supernatural being, and in the latter role is able to impregnate mortal women with his rays (Boas and Hunt:81-82), the equivalent of copper poles; thus copper is connected with semen. Copper is called *tlaq*, meaning blood, and thereby, is linked with the red cedar rings, the blood of the sacred tree, in which the power of the cannibal spirit Man-Eater is concentrated (Goldman 1975:82).

In a Bella Coola myth, copper's supernatural force gives it the power to attract wealth and to protect:

Raven decided to lure a supernatural being to his house, and so he made some copper into bangles and tied them to his baby's cradle. Their jingling attracted Atquntam, who sent a tiny supernatural being in human form. Raven caught it in a blanket and kept it in a sack. It brought wealth to him so that he could give a potlatch each year. Raven's son, who was successful in killing his father's enemies, was unable to kill the villagers who lived in the west because the houses, streets, and people were made of *taitaimx*, a kind of copper, against which his salmon-canoe was powerless (McIlwraith 1948, 2:688-90).

Copper appears to protect against supernaturals and also to destroy them. The long Haida myth of the Eagle hero, Stone Ribs, describes this

son of supernatural beings as wearing a copper coat (Swanton 1905c:193). He acquires a copper bow and arrows, the only kind to satisfy a supernatural (Swanton 1905c:196). With these powerful weapons he prevents a sea monster, a killer whale with five fins, from swallowing his mother and himself (Swanton 1905c:196). In another episode he kills the whale with his copper bow and arrows (Swanton 1905c:205). The power to overcome a supernatural with copper is less certain in another of Stone Ribs's trials in which he encounters a monster halibut with five fins and half-copper arms: ". . . it seized him. Even his insides it squeezed. Its claws even went through his copper coat. He tried to swell up. In vain. Then he entered the halibut skin and escaped between its claws" (Swanton 1905c:199). In this case, transformation is the only protection.

Wealth Bringing Capacity of Copper

The discovery of copper in its natural state insured wealth. Wealth was the outward manifestation of power, which was believed to be supernaturally endowed or acquired. Power resulted from close relationship with supernaturals either through an ancestor or more rarely through a personal encounter with a supernatural being. The discovery of copper not only gives to the finder tangible evidence of contact with the supernatural, but also manifests the element of luck, which has its own magical connotations.

An encounter with certain supernaturals with copper attributes insures the acquisition of wealth. A Tsimshian myth, resembling the Tlingit myth of the house-shaped Gonaqadet (Waterman 1923), tells of a monster Frog with long copper claws, a copper mouth, copper eyes and eyebrows. The hero kills the Frog and by wearing the skin brings wealth to the town (Boas 1902:137f). If a Haida sees Property Woman (*skil*) (Newcombe 1902), a being with curly hair, or hears the child which she carries on her back cry, he becomes wealthy. The Tlingit version of this being, called *benaxxidaq*, has long copper fingernails and will scratch the person trying to take her child. The scabs that form have to be kept for the person to become wealthy.

The Kwakiutl female Dzonoqwa, an ogress who carries off crying children (Boas 1936:144), and the Bella Coola Sniniq are somewhat similar to Property Woman. The Bella Coola Sniniq myth incorporates several elements common to copper-related myths:

A child cries in one of the underground houses where the poor live, and the mother sees a Sniniq looking into the house. She wakes her husband, who shoots the creature. Shortly afterward a female Sniniq takes up a position on a large stone on the bank of a river. The son of the chief investigates the animal, taking care to keep his feet in the canoe in case she should attack. The Sniniq begins to groan and weep, telling the sad story of how she has lost both her basket and her child, the animal which has been shot. She takes out the Copper

she is seated on and gives it to the chief's son, saying that it belonged to the dead child, but that he was to receive it because he had been brave enough to come to hear her story. She instructs him to go to her house where he can find many more Coppers (McIlwraith 1948,2:44–60).

The myth underscores themes of supernaturals as owners of Coppers and their acquisition by an individual whose chiefly behavior makes him worthy of the gift.

Among the Haida, the increase of wealth was also brought about by certain amulet-like copper figures, which when put in association with scraps of secretly stolen wealth property (clothing, blankets) brought about their increase as the years went by (Swanton quoting Newcombe 1905a:146).⁷ Tlingit amulets included a tubular piece of native copper which was filled with roots considered lucky in attracting game, wealth, or affection, and used when hunting sea otter and before eating. Similarly, a small piece of copper was used to attract a larger piece (DeLaguna 1972:664). To insure riches for his child, a Kwakiutl chief placed its umbilical cord in a box with his expensive Copper (Boas 1921:655).

Curing and Prevention

Copper was also believed to have curative properties—the Kwakiutl treated disease by enclosing body effluvia in copper (Boas 1932:182,191)—and to be able to “end everything,” i.e., to prevent pregnancy if placed under a girl's bed (Curtis 1916:94). If a halibut fisherman caught a dog fish, he cut off its head with a copper knife so that no more would take the hook (Boas 1932:237). Such preventative attributes of copper appear linked to the quality of “purity” (Douglas, M. 1966). Purity is invoked against substances regarded as decaying or unclean (in the case of the dog fish) and thus impure. Although Curtis claims a copper knife was used to cut the body of a human victim in order to bring disaster or death to others (Curtis 1916:94), it may also have been conceived as a means of preventing disaster to the knife wielder through the copper's purity. Copper's attribute of purity is explicit in the Tlingit myth of the Bear people's capture of a woman because she insults them by complaining after stepping in bear dung. On the advice of Mouse Woman, the woman defecates in a hole, covers the excrement, and places her copper bracelets on top. The Bear People are thus provoked to remark, “She has every right to ridicule our filthy excrements. Look at hers, it is copper” (Swanton 1909:128f).⁸ The implications of the foregoing seem to

⁷Four small copper figures (6 to 12.5 cm) owned by the Queen Charlotte Islands Museum Society, Masset, were collected from Charles Gladstone. The figures were stuffed with tiny bits of valuable materials like thread from potlatch blankets, strips of copper wire, etc. and were stored in bent wood boxes with blankets and masks in the hope that the wealth in the boxes would increase (information from Trish Gessler, 1976).

⁸A letter from Jeff Leer, Alaska Native Language Center, University of Alaska (23 December 1980) refers to other links between copper and excrement.

be that supernaturals are pure and everlasting, hence life-enhancing or wealth-bringing, including even their body effluvia as demonstrated also by the belief that the touching of scabs bring wealth (see above).⁹

The idea of purity seems to include an element of danger. Copper implements are handled with respect and reserved for particular situations or events, such as the use of three pronged copper needles for tattooing by the Haida (Swanton 1905a) and of copper or bone harpoon heads for hunting sea otter by the Tlingit (DeLaguna 1972:379).

Discussion

The logic of copper's connection with the supernatural appears to derive from its distinctive metallic properties and its seemingly fortuitous occurrence in nature. Copper's incorruptibility and capacity for endurance link it with supernatural spirits who have everlasting life. Its malleability, reddish color, and vein-like occurrence may lead to its connection with various living materials: blood, salmon, sun's rays which have in common not only their sustaining and generating qualities, but also their dynamism. They circulate or appear and disappear recurrently. They move between realms, energizing and bringing vitality to the world or to the human and animal inhabitants. As copper relates to these elements it takes on aspects of their meanings (see also Douglas 1970; Leach 1975).

At the time of contact possession of copper was a chiefly prerogative; whether so claimed by chiefly people, or because its scarcity and "cost" made it accessible only to them is debatable. It seems plausible to assume, however, that chiefs, the earthly representatives of ancestors, reserved for themselves the right to the use of a supernaturally endowed material such as copper. The Haida and Tlingit in particular authenticated chieflikeness by wearing copper daggers, bracelets, and necklaces.

Bracelets, necklaces, pendants, and rings for the nose, these things . . . were expensive. Just rich people had them—respectable people, *angawu* [rich people] use them. Whoever had it would be the proudest. Just high people use them things. A man like me can't use it. *Anyadi* [chiefly class] is the only one that use it. Sometimes they twist it like a rope, and they make it for their neck or for a bracelet. That's the only thing *anyadi* use before (Davison, quoted by DeLaguna 1972:413).

Eventually copper came to be used primarily for Coppers. By the time Boas and other ethnographers were engaged in their studies, Coppers were important emblems in Northwest Coast societies. Though recognized as prestigious, their significance was often interpreted as solely economic, because their value was reckoned in terms of slaves and/or

⁹Transformation takes place within the body of monster or animal in apparent reference to the interior of an animal/human being where food is transformed. Some of the magical properties attributed to body effluvia may thus refer metaphorically to transformational powers (see also Douglas 1970; Leach 1975).

blankets—the common media of exchange (see below). Purchased and exchanged, to some observers they apparently served as a form of money (Deans 1885:9). According to Dawson, a Copper formerly worth ten slaves was valued at forty to eighty blankets when he visited the area (1880:125b). Yet recent research contradicts these assumptions and points to several functions and many meanings of Coppers, including those inherent in copper even though in the languages of the Haida, Tlingit, and Tsimshian there is a distinction between copper and Coppers:¹⁰

	<i>copper</i>	<i>Coppers</i>
Tlingit	?i:G	tina
Alaskan Haida	xa;1	t'a:w
Skidegate Haida	xa1	t'aGu
Tsimshian	?i:G	hayazg

Among the Kwakiutl both copper and Coppers share the same term, *tlaq*.¹¹ The mythic and secular meanings of Copper must pertain in part to their unique form as well. In any event, such meanings vary according to the specific context of their social usage and function in each of the five societies.

The Roles of Coppers in Each of the Five Societies

The Tlingit, Haida, Tsimshian, Kwakiutl, and Bella Coola were the only peoples who used Coppers. Even neighboring groups such as the Nootka, who occupied lands not far from the Southern Kwakiutl and had similar contacts with western peoples, or the Ahtna, the skillful copper artisans of the Copper River area who were said to have created Coppers, never made use of them.

A major role of Coppers in all five societies was related to succession, but among the Haida, Tlingit, and Bella Coola it was the primary one. Among the Tsimshian and Kwakiutl, Coppers also figured in marriage ceremonies. However, the occasions at which Coppers were exchanged or presented were often integral to long term ceremonies, or in northern groups extended feuding relationships.

Haida and Tlingit¹²

The Tlingit live along the coastal area of the southern part of Alaska from Yakutat to the Portland Canal or the northern boundary of British Columbia. The Haida reside on the Queen Charlotte Islands and the

¹⁰See note 8, this chapter.

¹¹Curtis observed that Taku, the Haida name for Coppers, which according to him came from the Tsimshian and Tlingit, may have derived from Kako, a location of native copper in Tlingit territory (1916:131).

¹²Information on the Haida and Tlingit is based on Swanton (1905a; 1908a), DeLaguna (1972), and the potlatch analysis of Rosman and Rubel (1971).

southern part of Prince of Wales Island (Fig. 2). Tlingit is a Na-Déné language. Haida language, though distinct from Tlingit, is also possibly Na-Déné.

Haida and Tlingit societies were divided into exogamous matrilineal moieties, which were subdivided into units, variously called clans, houses, lineages. Among the Haida, these segments were ranked according to closeness of relationship to the highest-ranking member or chief, in the past with only one moiety represented in a village (Swanton 1905a:11). Succession to chieftainship was attained through inheritance. When a chief died, particular supernaturally linked lineage rights (titles, Coppers, crests, names of houses and canoes, and various ceremonial privileges) were passed to the new chief or head of the lineage, who by changing rank was conceived to be passing into another realm and assuming a different status. A potlatch was necessary to confirm the transition.

Upon the death of a Haida chief a *sik* potlatch was given by the successor to confirm his status, the dead chief's grave post (*xat* or *gi-hang*) was raised and the body placed inside it (or left in the grave house if the post was only a memorial column) (Swanton 1905a:52). A Copper reported to belong to the deceased was affixed to the post, but if none existed, the pole was embellished with one or more carvings of the deceased's crests and sometimes also his Coppers (Swanton 1905b; see also Deans 1885:9).

The young chief sponsor acquired the position and property of the deceased at the *sik* potlatch, but to assume the potlatch name, he had to sponsor a *walgal*, or housebuilding potlatch, at which he gave property to his wife's lineage for witnessing. At the *walgal* potlatch, the chief's lineage performed service for the children of his wife's lineage, among whom were his own, which included the conferring of rank through the transmission of names. The host's father's name "he who had been cradled in a Copper the day after his birth" (Rosman and Rubel 1971:62) went to his son—a transgenerational transmission linked with ancestral spirit. The Haida believed that the grandson was the reincarnation of the spirit of this grandfather. The host presented Coppers to the wife's lineage, ostensibly for his son, but since Swanton is not specific it cannot be determined whether they were intended for the children, or were part of the gift for witnessing.

The Tlingit local lineage, consisting of one or more houses, was the important potlatching group. These groups were headed by rich men (*ankaua*), usually the house masters (*yitsati*) of the leading houses. Two, one from each clan house, were commonly recognized for each village.

The Tlingit succession potlatch compressed the dual functions of funeral and housebuilding into one ceremony. Its multiple purposes included the celebration of the funerary rites of a dead chief, the succession to his office by a new chief, the building or rebuilding of a house for the successor, the accession to formal status by the children of

the deceased's groups who received new names, and the formal display of crests and dances owned by the deceased's group. The children of the successor also received names and had their lips and ears pierced (Swanton 1908b:434–35; Rosman and Rubel 1971:34–55).

At the potlatch, the lineage of the dead chief's widow performed the mortuary services; the successor's wife's lineage performed the housebuilding services and initiation rites to raise the status of the chief's children, the latter sometimes explicitly manifested by placing the child on such property as blankets and Coppers before their distribution (Swanton 1908b:442); the crests, Coppers, and other property inherited from the deceased were displayed, ceremonial gifts were placed in the fire for the ancestors, and gifts were bestowed on the witnessing guests by the host (Fig. 12). The precariousness of the rearrangement of rank was demonstrated in the antagonistic and rivalrous behavior of the guests, two generations of affines competing for the wealth of the host chief, who prepared themselves ceremonially for the potlatch as if for war.

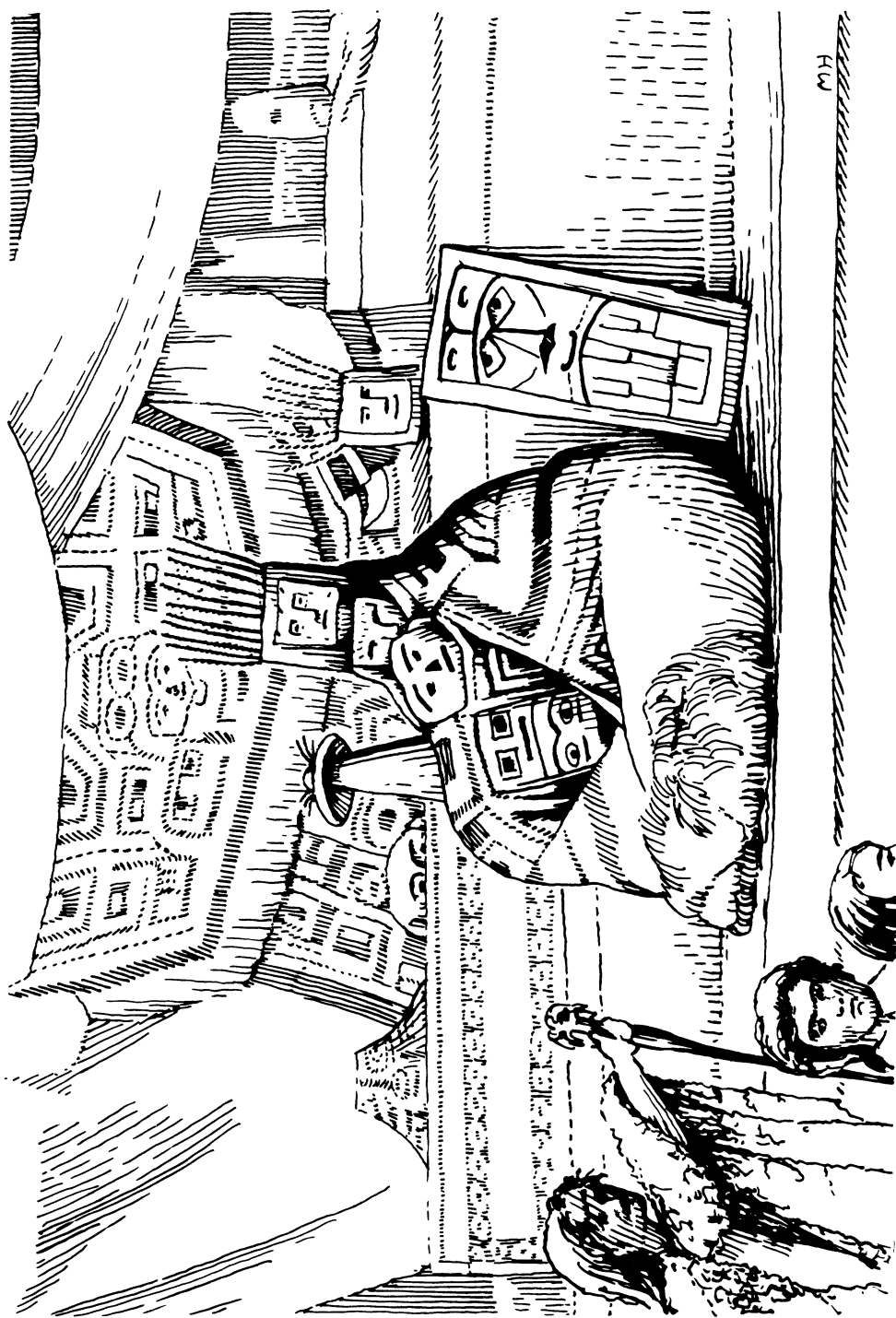
Tsimshian¹³

Among the Tsimshian, Coppers play many more prominent roles in rites of succession and other rituals such as marriage ceremonies. The Tsimshian, who speak a Penutian language, live in British Columbia along the Nass and Skeena rivers and the coastal area between. Once, they occupied territory at Douglas Channel and Gardner Canal and some of the coastal islands as far south as Laredo Sound¹⁴ (Fig. 2). They are comprised of three dialect groups: the Niska, who live along the Nass, the Gitksan on the upper Skeena, and the major groups of Tsimshians who live along the lower Skeena and the coast (MacDonald 1969:240). Despite differences, the Tsimshian were a culturally cohesive group though adapted to varied ecological conditions.

The Tsimshian are divided into four exogamic phratries, which are subdivided into clans or local groups associated with particular crests. The basic social unit is the lineage or house. Cross-cutting this order is the tribe, a geographic unit comprised of the various social categories, which acts as a political unit. Within each tribe, clans and phratries are ranked. The chief of the highest ranking phratry and clan is the tribal chief, with a potential for much greater power than a Haida or Tlingit chief. He holds the most powerful secular name in both his lineage and tribe, the right to the most dangerous and powerful sacred names and spirits which are related to the principal crests—the symbolic manifes-

¹³Sources for the Tsimshian include Adams (1969), Boas (1916), Duff (1959), Garfield (1939), and Rosman and Rubel's potlatch analysis (1971).

¹⁴Northwest Coast culture developed over a long period beginning at least by A.D. 500. Remnants of villages found by archaeologists indicate that the social organization was established by that time (MacDonald 1969).



12. Vosnesensky's drawing (copy) of a Tlingit memorial ceremony. A Copper is depicted to the left of the deceased and a shaman gestures at left foreground (Blomkvist 1951:291-92).

tations of links with the ancestors as well as reincarnation. Endowed with sacred powers, the tribal chief conveys supernatural power to a child, determines the time and participants of the winter ceremonials, and removes the influence of the spirits at their close (Garfield 1939:182-83). Loyalty to the tribal chief is the main tie binding a tribe together. His followers elevate him to his position, support his house-building, finance intertribal potlatches, and conduct his funeral in return for his leadership, patronage, and sharing of potlatch gifts (Garfield 1939:182-83).

Succession to lineage or tribal chieftainship follows a prescribed order which, however, can be modified. The leading tribesmen whose financial support is necessary make the final choice (Garfield 1939:182-83). Property passes in the same order, but can be attained only through the display and distribution of wealth at a potlatch by a lineage and its chief, who holds the rights to it. A chief acquires the wealth for giving a series of potlatches through the support of his brothers, his affinal relations, and his followers (Adams 1969:10,26,40).

In Tsimshian society great importance was assigned to the concepts of *naxnox* (supernatural force) and *halayt* (conceived as being sufficiently morally and socially pure as to be able to be named and known, and thus worthy to receive supernatural power). A *halayt* individual is one who has supernatural power, is best known, has given away the greatest amount of wealth, has the highest status, the greatest number of supporters among his tribe, the most marriage ties, and the greatest respect (Adams 1969:84f). Rules of succession were sometimes put aside in favor of charismatic individuals whose links with the supernatural were manifested in their wealth. The following myth is an illustration of this.

Poor Little Boy after many obstacles including the lack of chiefly prerogatives, through an encounter with a supernatural is able to attain great wealth. He gives a potlatch and asks his uncle to distribute the goods. The uncle places a Copper on Poor Little Boy's head and says "Now I will call your name" (Boas 1902:137-68).

Poor Little Boy has demonstrated his *halayt* and therefore can hold the name. According to this myth Coppers seem to be symbolic of *halayt* (supernatural power) which can be received by a person who demonstrates his worthiness through accumulation of wealth.

When a young man advances in social standing, along with other rights and privileges, he acquires supernatural helpers and associated names which are hereditary in various clans and lineages but not in tribes. The names and helpers (represented by carvings, masks, and puppet-like figures) were attained through initiation along with a power which could be "thrown upon or into other people" (Boas 1916:511-14).

Boas describes supernatural spirits being conveyed to the children of chiefs at a succession ceremony.

. . . all the different chiefs are assembled in the house of the head chief to perform what is called the throwing-dance . . . while the chief's own people are singing, and while he is dancing, he catches his supernatural power in the air and goes toward the child of the chief, holding the supernatural power between the palms of his hands, and throws it into the chief's child or into his niece or nephew. Then all the chiefs who are guests have each one night for their own throwing dance. . . . The dances end . . . and then all the princes and princesses have supernatural powers and have become dancers . . . Their father kills some slave or gives away much property or breaks a costly Copper (1916:515).

Usually, the successor to a chief attains his right to the office through a series of name-giving ceremonies throughout his life at which he receives progressively higher names from his paternal lineage. The chiefly names given to the young, potential successor contain some reference to the father's crest. Coppers figure in two of the important names recorded by Sapir; the male name of the highest rank in the Samlaxgit clan, Eagle phratry, was "Anchor for a Copper" a reference to an important Eagle myth; the highest ranking name of the Gicpodwuda was "Dividing Copper into Ten Pieces" (1915:24-25).

The succession or memorial potlatch takes place over three years and involves the erection of a grave post and the succession to chiefly office, as well as the building of a new house, the initiation into secret societies, and the acquisition of supernatural power. As described by Boas (1916:436), when the guests, who have brought their Coppers, slaves, canoes, and elkskins, are assembled, the head chief brings out his costly Coppers and states their names. At the burial ceremony, a chief's Copper, purchased by the tribe for the occasion, stands on end in splendid array in front of the body (Drucker 1965:125). At burial, the chief's Copper is broken up, and the pieces, called "the bones of the chief," are distributed to fellow chiefs (Garfield 1939:238, 164).¹⁵

During the memorial potlatch ceremonies are also conducted giving new names to the children. On one occasion, a Copper was carried by the chief who came with the children of his house. When his sister called out each child's name and told a story connected with it, the chief placed the Copper against the breast of the child. After the ceremony the Copper and forty blankets were given to the tribal chief who had conveyed the names (Garfield 1939:197). At the conclusion of all these ceremonies, the heir is formally presented and takes his name. Afterward a masked dancer carrying a Copper, who represents an ancestral spirit, instructs the new chief to break the Copper with a chisel and present pieces to the guest chiefs (Drucker 1965:127).

Coppers also played important roles in Tsimshian marriage. In Tsimshian society, marriage was a major means of acquiring the resources—among them Coppers—to attain the office of chief (Adams

¹⁵In another version of the pole raising, Coppers are stood against the base while the name of an important chief is called out for each. Coppers are then given to the chiefs in recompense for witnessing and the pole is raised (Garfield 1939:212).

1969:23–26). It was initiated by the groom's maternal relatives who conducted the negotiations offering gifts to the bride's relatives. The groom's father performed the services at the marriage potlatch, sometimes exchanging gifts with the father of the bride. Gifts were exchanged between the lineages of the bride and groom; a mock fight took place followed by dancing and feasting. The bride's group gave property including Coppers to the groom which he distributed among his people.

At a marriage ceremony described by Boas, the bride was surrounded by Coppers and walked on them as demonstration of her purity and her fertility—copper being equated with blood—as well as the wealth of her father (Boas 1915:264). The myth of the culture hero Gunazesemgad, who brings Coppers to the Tsimshian, illustrates the value of a marriage alliance. A Princess fleeing her captors is rescued by Floating Across. The Princess is advised by Mouse Woman to ask Floating Across to take her aboard his copper canoe saying “promise him the wealth of your father, all your father's property, or that he may marry you.” The Princess calls out “If my property is your property; if my father's elks are your elks; if my father's canoes are your canoes; if my father's slaves are your slaves; if my father's Coppers are your Coppers; if I become your wife.” Hearing the last, Floating Across saves her in his copper canoe. Gunazesemgad, the son of Floating Across and the Princess, later makes the first Copper out of this canoe (Boas 1912:147–91).

Kwakiutl¹⁶

The Kwakiutl are of Wakashan linguistic stock. They reside between the 50th and 54th parallels and include the Haisla at Douglas Channel in the north, the Heiltsuq, who are made up of the Bella Bella of Milbanke Sound and the Wikeno of Rivers Inlet and Wikeno Lake, and the various tribes who speak Southern Kwakiutl in the coastal areas of the northern part of Vancouver Island as far south as Campbell River and the mainland opposite (Fig. 2). Kwakiutl Coppers figure in an even wider variety of roles than Tsimshian Coppers. They are prominent in rites of succession and marriage, in rituals of sale and purchase of Coppers, and in rivalry situations. Coppers may play a sequence of roles: those used in succession rites were often acquired as marriage gifts, for which they may have been purchased at a previous succession potlatch. In each situation they were treated according to the specific context and were broken, burned, distributed in pieces, or kept whole. They were also reassembled and reconstituted. Coppers were named, which permitted tracking of the course of their “lives.” Coppers circulated, moving across boundaries and bringing wealth from chief to chief, thereby evoking the connotation of returning salmon.

¹⁶In addition to the many publications by Boas (see bibliography), other sources for the Kwakiutl include Codere (1950; 1959; 1966), Drucker and Heizer (1967), Goldman (1975), and also Rosman and Rubel (1971).

Only a person of chiefly rank (who had the right to names and prerogatives through inheritance) could own Coppers. "Orphans of noble descent who find a Copper become chiefs" (Boas 1935:53). Commoners lacking rights, who purchased or otherwise obtained Coppers, even with the wealth to potlatch, were denied the opportunity to raise their status and were instead disgraced or shamed (see Boas 1925:73-75 for a myth illustrating this point).

According to Boas, the Southern Kwakiutl comprised twenty tribes which interacted in marriages and potlatches. These tribes were subdivided into descent units called *numaym*. The minimal social units were houses each inhabited by several related families who were members of one or more *numaym* (Boas 1896:367-69; 1909:416). The members of the *numaym* were ranked according to their relationship to the founding ancestor. The oldest member was the ranking chief, the earthly representative of the ancestor, whose office was conceived as a ceremonial position in the potlatch where he acted as the representative of the whole *numaym*. The *numaym*, acting as units in relationship to each other, were ranked within the tribe. At potlatches they were seated in rank order; the highest ranking received gifts first (Boas 1891:609). Succession to ranked position was inherited and always passed by primogeniture to the first-born regardless of sex.

In Kwakiutl society descent was ordered ambilaterally; that is, "the child does not belong by birth to the gens [*numaym*] of his father or mother, but may be a member of any gens to which his father, mother, grandparents or great-grandparents belonged. . . . The child became the member of a *numaym* by being given a name belonging to that *numaym*. On this occasion property must be distributed among the member of the gens according to the rank of the name. . . . Chiefs are sometimes members of many *numaym* and even of several tribes" (Boas 1891:609). It was also possible to obtain a seat (potlatch position) in a *numaym* by killing the holder of the name or receiving it as a gift (Boas 1925:83; Boas and Hunt 1905:33).

The Sale of A Copper

The rituals involving the sale and purchase of Coppers, rites of succession, marriage, and marriage repurchase all took place during the Winter Ceremonial, a setting which linked them explicitly with supernatural encounter, the descent of the first ancestors, and themes of death and reincarnation. The Winter Ceremonial began with the sale of a Copper (Boas 1921:903), a transaction that bore little resemblance to northern Copper exchanges. The Haida and Tsimshian sold Coppers during potlatches, but evidently not in a ritual setting (Swanton 1905a:156). For the Kwakiutl however:

. . . the selling of a copper to another tribe is a tribal affair, in that while the purchase price is made up altogether by the individual buyer from his own

resources derived from loans at interest and from sums borrowed by him at interest, the purchase is always followed by a distribution of all the property involved. This is in fact the only reason for buying and selling coppers . . . a man cannot acquire a name for greatness without having bought many coppers and sold them in order to distribute the proceeds among his people. The giving away of property acquired in any other way than by selling a copper is regarded as a comparatively small honor for "there is nothing to give the occasion a name" (Curtis 1916:147-48).

Coppers were always sold to rivals. Boas's description of the sale of the Copper Maxsolem by the Mamaleleqala chief to the Kwagul (1897:338-446)¹⁷ shows it to have been an elaborate transaction:

. . . The buyer offers first the lowest prices at which the copper was sold. The owner declares he is satisfied, but his friends demand by degrees higher and higher prices. . . . Finally the amount offered is deemed satisfactory. Then the owner asks for boxes to carry away the blankets [the payment] . . . The whole purchase is called "putting the copper under the name of the buyer." The following day all the blankets are distributed among the owner's tribe . . . (Boas 1897:338)

Through the exchange set in motion by the Copper the superior rank of the buyers is confirmed and real property of blankets flows to the sellers (Drucker and Heizer 1967:60). Although the Copper was sacrificed by being passed down to a different realm, its rebirth is implied: "I will sell to you" the buyer states.

When a Copper was first bought, it was feasted by the chief who fed it through the fire like a spirit in the presence of the entire *numaym* to insure its return (Boas 1930:185-88).¹⁸ The ritual treatment was in the same mode as that given the first arriving salmon and the Copper was called "salmon" by its new owner (Boas 1930:185-88).

Now, we will pray for this salmon of our chief, this great Copper. Great one friend you have come, now welcome. . . . You have entered this house of my chief. Now I pray you Great Supernatural One, You Steel-head Salmon that you may protect my chief that nothing wrong may befall him in anything he does and also that you invite Coppers of your size that they may keep on trying to come to this clever chief who will take care of your friends when they try to come to my chief. . . . (Boas 1930:186).

¹⁷The male Dzonoqwa, the warrior of his brother Man-Eater, acquires wives and wealth to pacify him (Boas and Hunt 1905:209). A chief, who had the prerogative, dressed as Dzonoqwa or uttered his cry when selling a Copper or distributing property, probably a reference to the taking of a captive or treasure.

¹⁸In the early nineteenth century the Kwakiutl kept their Coppers in flat boxes along with white cedar bark mixed with eagle down (often interpreted as semen and a reference to generative power). The Copper lay "on its stomach." When the whole *numaym* of the owner of the Copper arrived, the owner's wife took a mat and spread it in the middle of the rear of the house (chief's area). The chief's speaker brought out the Copper from the owner's room carrying it in the box on his shoulder and said: "Look at me, *numaym*, I come carrying on my shoulder this salmon of our chief. It came and went into the salmon trap of our chief, now we will feed it" (Boas 1930:185).

Connections between Coppers and the supernatural, allusions to Coppers as protective instruments, to their capacity for increase, and to their ties with names are explicit in this passage.

Succession

Among the Kwakiutl, succession to chieftainship took place during the chief's lifetime. At intervals during his youth, a child received names and privileges bestowed by his parents at potlatches. When he reached manhood, his father relinquished his own name and seat, passed to the heir *numaym* property (which consisted of economic resources, names, carvings, ceremonial privileges, and knowledge of ancestral histories), and assumed a lower-ranking position (Boas 1921:709,1330).

Boas's description of the Great Potlatch documents the multiple events that took place when Lasotiwalis took his chiefly name and office. Descriptions are given of several Coppers and their roles: the old chief purchased a Copper for his son to sell; the father of the old chief's wife gave him a Copper (probably part of the chief's wife marriage repurchase) which the chief gave to Lasotiwalis; the Kwagul chiefs were told to keep their Coppers ready in case Lasotiwalis was challenged and to mark the corners of the Copper (just received) according to the chief's instructions; Lasotiwalis announced new names for his heirs; the chiefs then struck off the Copper's marked corners and gave the pieces to the chiefs of the witnesses; the receivers thanked Lasotiwalis; the chief gave his seat and office to Lasotiwalis and stood at the end of his *numaym*; final distributions included all the property belonging to the *numaym* under the old chief (blankets, the empty boxes, paddles, mats, dishes, spoons) and even the board walls of the house (Boas 1925:227-29).

When occasionally succession took place at the funeral of a chief, the ritual was similar except for mourning songs at the beginning. The son of the chief stood holding a Copper in his hands, saying "Don't mourn anymore. I will be chief. I take the name of my father" (Boas 1887:428).

Succession to office could bring forth a challenger to contest the claimant's right, in which case a rivalry potlatch took place with witnessing guests called upon to authenticate the winner.

Rivalry

Kwakiutl rivalry differed structurally from northern potlatching in which the one who succeeded in potlatching won a position to which he was already entitled within the moiety or phratry system. The Kwakiutl giver of a rivalry potlatch was a challenger claiming *numaym* rights and names that were genuinely in contention. To attempt to win a rivalry potlatch called for and at the same time encouraged powerful friends among the chiefs (Drucker and Heizer 1967:117).

Curtis describes one of many variable procedures involving Kwakiutl

Coppers in rivalry potlatches and also an explanation of the Coppers' assemblage technology:

. . . the breaking of a copper is a means of destroying a rival. A fragment is given to the rival, who then must break a copper of equal value and give both pieces to the first man. The contest continues until one or the other has exhausted his resources and is obliged, with great loss of prestige, to admit defeat. It is not permitted to redeem one's reputation by paying a rival the value of his broken copper; one must respond by breaking a copper. When a copper has been reduced to the raised T, which is valued at two-thirds of the whole copper, this remnant may be given away just as is any other fragment. The person who receives the "cross" may then buy the other pieces, rivet them together and sell the whole renovated copper (1916:148).

A history of several Coppers by George Hunt documents various rivalrous transactions during which they were destroyed and reconstructed. A last owner of one gave it to his elder brother saying "This T-piece I break out of this copper to be the bones of my dead father" and threw it away (Stott 1966:22-35). He brought about the Copper's "death" so it could return to the ancestors as his father had done.

By breaking a Copper to give a piece to a rival a chief expressed the rival's inferior rank within the potlatching group. "The chiefs of all the tribes are my servants, the chiefs of all the tribes are my speakers. They are pieces of a copper which I have broken" (Codere 1966:96).

The breaking of a Copper was a sacrifice in economic as well as ideological terms. It was removed from the system and no longer able to attract blankets unless reconstituted. It was understood that chiefly rivalry could be ruinous to the *numaym* however much it added to its honor. The above song continued: "Do not let our chief rise too high. Do not let him destroy too much property else we shall be made like broken pieces of copper by the greater breaker of coppers, the great splitter of copper, the great chief who throws coppers into the water, the great one who can not be surpassed by anybody, the one surmounting all the chiefs . . ." (Codere 1966:96).

Supernatural and warlike connections appear in Dawson's description of a chief he witnessed on such an occasion:

. . . accompanied by a man hideously dressed and wearing a mask, drawing out and exhibiting a scalp in each hand and saying to his principal rival: "these are enemies of mine whom I have killed, and in like manner I will crush you." Then before he had quite completed the purchase of the Copper he began to break a large piece from one corner, and as the copper in question was undoubtedly more valuable than that previously mutilated by the Nimkish chief, he . . . changed his name . . . and erect[ed] a post in commemoration of the event, on which . . . the copper itself was elevated (1887:19).

The "hideously dressed" man is evidently a Winter Ceremonial personage or shaman, whose presence lends threatening supernatural power. The scalps are a reminder that a tribe can be crushed by killing

as well as by the breaking of Coppers. The loss of names to other tribes or *numaym* through death or defeat in rivalry situations could ultimately destroy a *numaym* by denying reincarnation (further membership). The scene also recalls a similar one witnessed by Belcher of the rivalrous killing of slaves (1843).

Marriage

Marriage among the Kwakiutl is conceived as warfare. "The chiefs make war upon the princesses of the tribes. . . ." (Boas 1925:53). "The fiction that the marriage is one between two tribes or villages is maintained throughout" (Codere 1966:54).

Thus when the Kwagul went to marry the daughter of a Mamelelekula chief, they were met by the young men of the bride's tribe. They pelted one another with stones and many were hurt. The groom's party paid the marriage money and the bride came out of the house with her father, accompanied by four slaves, who carried many dressed skins as a marriage mat [dowry] and a copper which she was said to walk down to the canoe of her husband. . . . When the governor's party [Kwagul] arrived at home, the marriage mat was distributed among the Kwagul. One slave was given to the headman of each *numaym*, excepting that of the groom. The "copper" was sold, and the proceeds were distributed by the groom to increase the nobility of his father's name (Codere 1966:68, quoting Boas 1921:968).

The procedures of marriage included negotiations between the fathers, followed by the marriage payment from the groom's lineage to the father of the bride which could include a copper; the gift of a Copper representing the mat by the bride's father to the groom; the transfer to her husband's group of the bride's property consisting of household goods, bracelets and other ornaments, and a *gyisteral* (a board set with sea-otter teeth intended to represent the lower human jaw and the bride's agreement either to speak or be silent) (Boas 1897:428). The marriage was formally ended by the marriage repurchase which permitted a wife either to remain with her husband or return to her natal *numaym*. It could take place immediately, but frequently occurred after the birth of a child. It consisted of the repayment of the marriage debt with *tlogwe* (Winter Ceremonial names and treasures) which were generally transmitted only through marriage repurchase, but could also be obtained by murdering their owner in a surprise attack (Boas 1897:424).

The Copper given at marriage by the bride's father to the groom, called "the mast of the canoe," was always part of the marriage repurchase. In a ceremony described by Boas, the father of the bride collected box covers, ornaments including copper bracelets, miniature Coppers and twisted copper neckrings, clothing, and an expensive Copper. A large amount of food was also provided and wooden and horn spoons were "the anchor line of the catamaran." A special song

was composed which referred specifically to the princess's abalone-decorated dress and the Copper and its history. These "trifles" were carried to the groom's father's house and arranged within a square created by the box lids which represented the canoe or catamaran. During the ensuing ritual a younger brother (warrior) of the groom smashed one of the box lids with an axe, thus causing the canoe to sink. The bride, bearing the Copper, danced, accompanied by her father, who took the Copper from the princess and gave it to the groom, saying "This is the Copper mast of the catamaran that contains payment of the marriage debt." Then he delivered the box containing the privileges to the groom's father.

Bella Coola¹⁹

The Bella Coola, a smaller group, inhabit the lower Bella Coola River, the Kimsquit River, and South Bentwick Arm (Fig. 2). Speaking a Salish dialect, they resemble other Salish-speaking peoples, who include the Central Coast and Interior Salish, the Olympic and the Tillamook (Collins, J. 1974:8), but are more like their coastal neighbors, the Heiltsuq, by whom they are cut off from the outer coasts (Drucker 1965:107).

According to McIlwraith, the Bella Coola used Coppers "for only two purposes; casting on the ground upon which the representation of a dead relative had trodden or throwing into fire when the figure had left the house. In either case, they are said "to make bones for the dead." Although used but rarely, the occasion where the Copper is employed is so important that to obtain one and increase its value is a vital consideration for every chief" (1948,1:252). These two purposes involved several transactions which were almost entirely related to succession and the mortuary potlatch.

The Bella Coola believe that Coppers were obtained from northern tribes before the coming of whites, but their value is attributed to their occurrence in the ancestral myths. It is said to be easier for a chief to acquire one if his origin myth refers to their use by his ancestors (McIlwraith 1948, 2:317). The Bella Coola also believe that from the beginning their ancestors used two kinds of copper, *talia* and *taitaimx*. *Taitaimx* Coppers were believed to be fabricated at a river in the northern district in the following manner: A chief kills a slave and uses its flesh to embue his spear with the power to catch a "peculiar" salmon. Then he heats it over a fire and pounds it on a stone until it turns into a *taitaimx* Copper. This rare type of Copper, considered more valuable than the common *talia*, had curative properties (McIlwraith 1948,1:252-55). Except for curing, both types of Coppers were used interchangeably.

Bella Coola social organization is tied with the myths of the arrival of

¹⁹McIlwraith (1948) is the principal source for information on the Bella Coola.

the first ancestors from *nusmat-a* (their home above the sky) who are believed to have occupied each of the original forty-five villages and formed families of *minmints*. The prestigious names of the first settlers were inherited by high-ranking individuals who became chiefs once they had distributed property. At that moment a chief says: "The first ancestor is resurrected in me, his glory is added to any that I may have" (Rosman and Rubel quoting McIlwraith 1971:113). A *minmints* did not act as a potlatch or revenge unit like the Kwakiutl *numaym*. The household, consisting of the donor and his family, was the unit for potlatching.

Succession

Although potlatching was essential to many occasions, a Copper was present only at the mortuary ceremony, a memorial for the dead predecessor of the successor donor, which required many, preferably foreign witnesses to acknowledge publicly the succession to the deceased's position of head of household. This potlatch was "considered a fitting tribute of respect to a deceased chief and if none of his near relatives should have one, they would brand themselves as unmindful of the fame of their dead kinsman. . . . So much wealth is required that it can be carried out by chiefs alone" (McIlwraith 1948,1:473).

Unique to the Bella Coola mortuary ceremony was the "return" of the deceased, who appeared wearing a mask referring to his First-Settler myth, circled the fire, and departed, accompanied by whistling from the outside. After the masked figure of the deceased had departed, the donor rose, took a Copper acquired for the ceremony, broke it across his knee, and threw it on the ground where the figure walked or in the fire calling out loudly: "It is for his crest. It has made bone for the dead. . . . My heart is glad at seeing my father. At death he returned back on the path of my family's ancestors and donned our ancient crest. He lives in Nusmat-a whence he came to visit us and whither he has now gone back" (McIlwraith 1948,1:222).

During the ceremony, songs were sung with themes encouraging the spirit, many referring to copper: "He is bright (like the sun that shines out from the clouds) the chief Yealos: he carries a special kind of copper" (McIlwraith 1948,2:297). Successful potlatching smoothed the way for the spirit. The dead were remembered in terms of their potlatching. Wooden replicas of Coppers were placed at grave sites to show the degree to which an individual had potlatched (Stott 1975:55).

After the ceremony any chief could give the Copper's remains to a poor man, saying "to patch your canoe," taking care to choose a person who had not recently received one. The new owner repaired the Copper and either kept it or sold it to a chief preparing to potlatch. A chief who paid lavishly added to the Copper's value, which was reckoned in dollars rather than slaves, canoes or salmon, the most expensive ranging

from \$150 to \$200. At a ceremony connected with a ritual of a secret society (*kusiut*—similar to the Kwakiutl Winter Ceremonial in its shamanic aspects) the purchase was confirmed and the poor man distributed the money he had received as well as food to the entire village (Stott 1975).

If the poor man sold the Copper for a low price its value had to be raised by the buyer, who chose among several options: he could: 1) have his crest painted on it; 2) confer on it a name and distribute gifts (analogous to the naming of a child); or 3) make gifts. In the last instance, the Copper was treated like a chiefly heir, its status comparably elevated by donations made in its name. Coppers deemed unworthy of memorial potlatches could also be raised in value by a process called "investment present" (by moving a Copper through a series of distributions in which the return was expected to be doubled each time) (McIlwraith 1948, 1:236).

If a potlatch donor did not possess a Copper "to make bone," he requested one from a witnessing chief. The donor threw the Copper into fire, but had to pay the chief the stated value plus 100 percent interest. Yet he was able to postpone payment (at a time when he had other obligations) and also to raise the value of the Copper. Not every Copper was immediately rescued after burning or breaking. Some were fastened to the memorial post over the deceased's grave and later, deemed valueless, bought by a chief at a low price.

Rivalry Gesture and the Destruction of Coppers

The destruction of Coppers figured prominently in certain variable rivalry situations, which occurred among all the people of the North West Coast. In succession ceremonies Coppers stand for the supernatural power of a chiefly person, a power that enables him to accumulate sufficient wealth to attain the position of chief, who is an earthly representative of an ancestor, and thereby insure his reincarnation and the continuation of the lineage or *numayn*. The destruction of Coppers thus signifies the loss of supernatural power and the possibility of reincarnation. The term, rivalry gesture, identifies a particular form of Kwakiutl behavior involving the presentation or destruction of a single item or single lot of wealth goods to embarrass, belittle, or offend some person toward whom the maker of the gesture bore ill will (Drucker and Heizer 1967:118–120f). The rivalry gesture was a means of overcoming a chief economically as he could have been destroyed by war. He was not killed, but lost his power/wealth and his status through defeat and public shaming. Concomitantly the victor's power and prestige were elevated. The rivalry gesture was a contest for the approval of the established chiefs like the rivalry potlatch (Drucker and Heizer 1967:116), but individuals were not forced to compete, and did not move to new positions, there were no invited witnesses, and property was not distributed.

In preparation for responding to an insult Coppers were often sequestered; thus potlatch capital was immobilized (Drucker and Heizer 1967:120). Moreover, although the destruction of property had an actual economic effect, debts were not wiped out by the drowning or destruction of Coppers; rather the means to acquire property was sacrificed in an effort to attain superior status. With it, however, a chief might attract more followers and greater wealth.

The term, rivalry gesture, has been extended here to include similar conduct among the Haida, Tlingit, and Tsimshian, but the Bella Coola, who only destroyed property other than Coppers, are omitted. The term has also been expanded to include the use of Coppers in obverse peace-keeping gestures. Among the Kwakiutl, the rivalry gesture took place during the winter season of potlatches and feasts, but among northern people was associated with ceremonies specific to particular occasions.

Coppers were destroyed by various means in the Kwakiutl rivalry gesture. In a case reported by Hunt a guest at a feast took insult at being offered berries in dirty canoes and therefore challenged his host by throwing a Copper into the fire. A contest followed during which many more Coppers were burned until both rivals having exhausted their supplies agreed that "the fire had died out." But the insulted guest, still not satisfied, sent followers to his wife's father's house to break four canoes and put the pieces on the fire to "build it up again." The host displayed his strength through stoic endurance of the intense heat. The contest continued with winter dance competition. Finally the guest emerged as the winner because he sacrificed a slave, had it eaten, and burned two others alive. The defeated and disgraced host left to fight the Nootka and was killed (1906:108-10).

Rivalry gestures could be ingenious. Curtis describes an instance in which a chief became angry when a rival attempted sorcery upon him by putting his bodily effluents and bits of his shirt into three toads. To avenge this wrong he broke a Copper into three pieces, placed each between the jaws of the toads, then tied all his Coppers to a board and sank them in the bay, thereby destroying his rival who could not match this feat (1916:151).

Coppers were also used in the shaming and redress of insult among the northern peoples, but as a result of the characteristic long-term feuding contests there was incomplete separation between rivalry gesture and rivalry potlatch (see Boas 1916:380-92 for a contest between the Tsimshian and Haida, and Swanton 1909:160-65 for a Tlingit feud). Boas describes the role of Coppers in a Tsimshian feud which incorporated many instances of rivalry gesture and Copper destruction and was eventually ended by a rivalry potlatch. It began with competition over a claim to succession when one rival placed an expensive Copper before his opponent. The feud continued on into a later generation when the descendant of one claimant tricked and captured the heir of the other

and many of his people. He cut the heads off his captives and threw them in the water and threw a large Copper in also. The surviving young prince of the captive group threw a large expensive Copper on the beach saying that it cost four small Tlingit Coppers. The killer threw another large Copper in the water saying "This Copper is larger than yours." Made of wood, that Copper did not sink. The young prince threw away another costly Copper saying "it is worth many mountains of wooden Coppers." The killer was defeated and fled in shame. The young prince's people potlatched, bestowed names, and gave to their guests many Coppers, slaves, and canoes, and their lineage was then restored (Boas 1916:355-701).

Other rivalrous situations appear similar, but incomplete recording of the context makes it difficult to determine the intent. An occasion witnessed by Colnett (see below) may have been such a case of rivalry gesture.

Among the northern peoples, but not the Kwakiutl, Coppers served as instruments of peace. The casting of Coppers into the sea (conceived as a place of renewal by the Haida and Tlingit) before the Haida chief, Edensaw, was probably a peace gesture—submission in recognition of his greatness—rather than a challenge. Swanton also recorded the peace making intent of the destruction of Coppers.

Five chiefs of the Point-town people were killed. After they had fought for a while, the Point-town people carried over two coppers to Qlaya'n. They threw them into the water. Then those too had peace with each other. They gave slaves back and forth as blood money. And they had women on each side marry with the opposite because they feared they would be angry again. Now there was peace (Swanton 1905c:395).

Coppers also might be used as "blood money" after a killing to prevent further killing and loss of property. In two versions of a Haida myth (not history, but indicative of values) recorded by Swanton, the killings result in demand for territory (inlets, sea water, or land) to be given to the group whose people were killed. Coppers were transferred instead (Swanton 1905c:86). Other Haida disputes were resolved with gifts of Coppers (Swanton 1905c:432). A Tlingit myth describes the acquisition of land with Coppers as a kind of conquest; after finding and cutting apart an immense Copper that was equipped with eyes and hands, the heroes use the pieces (each worth ten slaves) to purchase land from the Koskedi (Swanton 1909:345-45, 540-51).

Coppers also seem to have been substituted as a guarantee or a bond of peace between Tlingit and Tsimshian groups when the human hostages, who had fulfilled this objective, returned home (Boas 1916:370-80).

Discussion

The logic of rivalry seems to be that a great chief was obliged to display his power by overcoming and punishing threats or slights. By

killing his enemies and taking their heads, he acquired their supernatural power and at the same time displayed his absolute authority. These actions of intolerance toward affronts were also effective in maintaining control over followers (see also Boas 1921:1017).

The rivalry gesture seems to be a substitute for killing. At these events Coppers appear to replace humans: slaves, warriors, or chiefs (both warriors and chiefs could be slaves). It was not unusual for a chief to kill a slave to recover from loss of dignity resulting from an insult. According to Belcher: "If a chief wishes to insult another he sacrifices to him a certain number of slaves. It would be loss of stamp if the opponent failed in dispatching an equal number, but generally, a larger number . . . This may continue until they have expended their stock, when they possibly come to personal attack . . ." (1843:104). The destruction of Coppers parallels this description.

The Kwakiutl alluded to the replacement of weapons and warfare with Coppers: A Koskimo dancer says: "We used to fight with bows and arrows, with spears and guns. We robbed each other's blood. But now we fight with this (pointing at the copper which he was holding in his hands), and if we have no coppers, we fight with canoes and blankets. That is all."

The speaker replies: "True is your word, friend. When I was young, I have seen streams of blood shed in war. But since that time the white man came and stopped up that stream of blood with wealth. Now we are fighting with our wealth. That is all" (Boas 1897:571).

Coppers served as replacements for slaves in the Kwakiutl *hamatsa* ceremony (see also Codere 1966 for the sacrificing of a Copper to pay those bitten in the Hamatsa ceremony). Similarly, destruction of Coppers in the setting of the rivalry gesture at times seems to have replaced the killing of slaves, although both practices existed together. Moreover, slaves were sacrificed at the death of their owners, and when they died, their bodies were discarded into the sea. The Haida believed that if an owner did otherwise, he could never acquire any more (Swanton 1905a:54). Among all cultures there were instances of slaves being killed and placed in the post hole when a house was being constructed or a totem pole raised. A carving of an upside down figure on Haida poles referred to this practice. Coppers were used in the same way at similar events. Whether this practice was a means of insuring renewal of slave or Copper is possible, but uncertain.

The supposition that Coppers were substituted for trophy heads, though more controversial, is based in part on the use of Coppers in peace-keeping situations, as described above. Accounts of Haida raids by Niblack (1890:319) and Swanton (1905a:55) report that the men of the invaded village were decapitated as they slept and the women and children taken as slaves. On return to the home village, the heads of the men were carried in triumph, some impaled on canoe masts, erected on poles along the beach, and a dance was performed in celebration by the

wives and returning warriors. The Kwakiutl scalped as well as decapitated their enemies. The head of the most important man killed was placed on a staff and fastened upright in the returning canoe like an ensign. On arrival at their village, warriors raised their trophy heads, shook them, and afterward, exposed them on tall stakes along the beach (Curtis 1916:98–105).

The use of Coppers in a somewhat similar situation was recorded by DeLaguna. A Tlingit chief acquired a stream by paying for it with a canoe with seven cross bars to which Coppers worth ten slaves each were tied (1972). Possibly Coppers formally represent the heads of warriors which would have been taken in the course of claiming the land. In Dawson's account of the rivalry potlatch (above), both scalps and Coppers were used to display the chief's power.

Comparison of Coppers and Their Use and Meaning

Physical Properties

The use and treatment—that is, whether Coppers are retained as whole entities or broken and distributed—differ according to the meaning and social function in each society. The apparently isomorphic connections between Coppers and salmon and human forms similarly vary.

In Haida and Tlingit succession ceremonies Coppers were symbols of the wealth of chiefs who were earthly representatives of lineage ancestors. The Tlingit copper positioned next to the body of dead chief at a memorial ceremony depicted in Vosnesensky's drawing (Fig. 12) seems to refer to the chief's wealth and supernatural power. MacKenzie describes a Haida chief, Edensaw, dancing while wearing two Coppers bound to each side of his head (1891:52). Tlingit shaman wore hats variously called Sun's or Bear's Ears (DeLaguna 1972) which were also worn by warriors and participants at feasts. This particular use of the Coppers by Edensaw may refer to these hats, in which case it would have expressed or invoked supernatural power. Coppers attached to Haida poles seem also to refer to the chief's supernatural power/wealth in relation to his ancestral heritage represented by the carvings on the pole. The formal aspects of the Copper's design are appropriate to these concepts. Physically a Copper can be compared with Haida and Tlingit cosmology: the broad upper part above separated by the horizontal line of the T equates with the sky world; the vertical part of the T, the spine or pole *axis mundi*; on the upper part is engraved the ancestor crest figure of Grizzly Bear or Killer Whale lineage ancestor (the latter, also Master dispensing wealth among the Haida); a human-like face (spirit) appears below the animal crest at throat level on some northern Coppers in possible reference to spirit rebirth. The form and design have also been compared to the house form and to the moiety social structure. In the latter case, the upper section with its crest represents the chief, or in

the house the screen which separates the chief's area and its sacred property, the two halves of the lower part, lineages in competition for the chief's power, or in the house, lineage seats on either side of the chief (MacDonald 1977). However interpreted, the significant point here is that, as symbols of continuity within the moiety lineage system of the Tlingit and Haida, Coppers were not divided and distributed, but kept whole. There is evidence that occasionally pieces of Haida Coppers were distributed; however the value of a Haida Copper was fixed, and the loss of a part of one would reduce its value proportionately (Swanton 1905a:156).

Tsimshian Coppers, like those of the Haida and Tlingit, were placed beside the body of the dead chief to symbolize his wealth and supernatural power. Those belonging to lineage chiefs remained undivided for similar reasons. At the memorial potlatch, the distribution of Copper pieces to participating chiefs was a unifying symbol displaying their relative *halayt*, ranking order in the system, and subordination to the tribal chief. There is no indication of reconstitution of Tsimshian Coppers. Breaking and distribution were evidently ends in themselves. The performance seems modeled on the sharing of salmon with which Coppers were equated (see above and also Boas 1916:270-72; Ravenhill 1944:28-30), and thus reincarnation (return of salmon). Tsimshian society, sufficiently flexible to incorporate diverse peoples into its hierarchical social system, apparently made use of Coppers to symbolize visually relative ranking as well as chiefly power.

The substance of copper, conceived as pure, seems ideally representative of the Tsimshian concept of the state of *halayt*, that is, imbued with supernatural power with connotations of purity (see above). The breaking and distribution of a Copper share its *halayt* with witnesses. Indeed, a piece of a ceremonial Copper may endow the receiver with supernatural power. The desire to transfer *halayt* seems to lie behind the pressing of Coppers against the breast of a child who through transgenerational transfer is receiving names (titles) which are evidence of his *halayt* and also of the reincarnation of lineage spirits.

At power throwing ceremonies, the distribution of whole Coppers or pieces of Coppers seems to enhance the shamanistic role of chiefs. At Tsimshian marriage ceremonies Coppers were not broken, but remained whole as symbols of progeny and/or lineage continuity. In the exchange process between lineages, Coppers validated the power of the participant chiefs and their families to accumulate wealth (supernatural power) and were also instruments for its increase.

Kwakiutl Coppers were essential to a number of rituals in which they seem to have been a direct replacement for many natural objects and/or wealth goods. As slaves were collected to condense the value of wealth goods (see Garfield above), Coppers were used both as symbols of these goods and as wealth in themselves. Their resonance to salmon and humans seems particularly indicative of this substitution.

A Kwakiutl Copper has a quasi-human form: the upper part, on which a face motif appears is the head; the central T, the spine—"bones of the chief"—and the lower part decorated with ribs the "hind end or body." The Copper has a name and seems emblematic of the chief, the "ancestor of the tribe as well as the man who assumed a high social position by giving a potlatch" (Boas 1935:53). Treated as emblem of supernatural power and as chief, the Copper thus seems to signify *numaym* continuity. Moreover, as the power of Kwakiutl chiefs resides in the *numaym* names (titles) they have acquired, the names of Coppers are records of their own value.

Kwakiutl Coppers are also instruments of wealth acquisition and manifestations of chiefliness. The sale of the Copper confirms the chiefliness of both giver and receiver (Barnett 1938). Only one who could assemble abundant wealth through the support of his tribe was worthy of this office. At succession the Copper given to his son by the old chief is used to attract blankets to give to witnesses with the implication of renewal or reincarnation in the mode of returning salmon.

A Copper acquired by the father through marriage repurchase is broken and distributed (sacrificed) to honor participating rivals and confirm the new chief's status. The sequence of distribution is emblematic of the chief's rank in relation to that of the visiting guests, and the pieces, as parts of the whole, represent the interdependence of the tribes. Analogous to the *numaym*, which despite changing membership maintains continuity through the structure of relationship to supernatural ancestors and ranked names, Coppers are reconstructed. Reincarnation of the *numaym* and Copper is the theme. The T form as "bones of the chief" refers directly to the spirit content and to expectations of reincarnation. As on other occasions, the exchange of Coppers at marriage symbolizes the renewal of wealth. The transfer of a particular Copper in marriage also appears to legitimize a precarious and possibly only temporary unification of two lines and to symbolize the procreation of descendants for the continuation of the *numaym* (mast of the canoe [*axis mundi*]).

The destruction of Coppers at rivalry displays, unlike the sales of Coppers which confirm the status of both participants, enhances the wealth/supernatural power of one chief at the expense of another.

A Bella Coola Copper seems to personify a chief and the supernatural power that resides in an ancestral name. Its life parallels the life of a chiefly person with periodic stages of elevation validated through various distributions of property, followed by destruction (death) and finally, reconstruction (rebirth). Coppers like names are manifestations of spirits which are brought into life when attached to humans. As the name returns to *nusmat-a* at death, the spirit of a Copper is sent through the fire to accompany the chief's spirit to the ancestral home. The deliberate breaking implies the activation of reincarnation, rather than merely symbolizing its prospect.

Destroying the Copper makes it valueless. Although it is thus apparently a sacrifice for the benefit of the deceased, McIlwraith notes that his informants lack understanding of that meaning. The valueless Copper could only go to an equally valueless poor man to be reconstructed and eventually reactivated.

Relative Number and Quality of Coppers

The quantity of Coppers belonging to a social group should reveal something of their importance. There is congruence between the numerous existing Kwakiutl Coppers and Copper pieces and their multiple uses, and also the few existing Bella Coola Coppers and their limited use, but there are contradictions between recorded information on the Haida and Tsimshian and the numbers of Coppers existing in museum collections. Many large Haida Coppers exist, but there is little ethnographic information on their use, although some observations on the Haida suggest that many Coppers were used in rivalry contests (if thrown in the sea, they were recovered). In contrast there are few examples of Tsimshian Coppers and full accounts of their prominence at many ceremonies. These discrepancies may result from incomplete data, mislabeling, and many other possible causes. However, the fewer existing Tsimshian Coppers may point to the ceremonial breaking and distribution of proportionately greater numbers.

The above accounts usually make only passing references to what must have been numbers of Coppers used in exchanges, judging by other indications such as numerous archival photographs of Northern groups. These photographs show many decorated and plain large Coppers on display with other wealth goods presumably for distribution at potlatches. It seems fair to ask whether there were different uses for crudely and finely made Coppers, and decorated and plain ones.

Almost every observer beginning with Lisiansky (1805) has commented on the existence of so-called "spurious" Coppers. Several noted that these were exchanged. Unadorned Coppers may have been considered "spurious" and were used in certain forms of wealth-producing exchange (to raise blankets for potlatching), rivalry situations, and burial under totem poles. A Copper found at Tongass nailed to a child's burial post is crude and unornamented (Fig. 13). Very little is recorded about the creation of Coppers, but unadorned Coppers could have been made rather quickly by almost anyone, while only artist-specialists could have created fine Coppers with crests. The more rare, finely designed Coppers, which possibly were ancient heirlooms identified with particular lineages and considered imbued with supernatural power, may have been reserved for succession, especially among the Haida and Tlingit. When passed to heirs or exchanged, the crests and names facilitated the recording of their histories, some of which exist (MacKenzie 1891), but unfortunately seldom with descriptions of the



13. Tlingit Copper. $30\frac{1}{2} \times 20$ in. Copper was nailed to mortuary pole over an opening holding a child's body. Pole located in village at entrance to Portland Sound. Collected by G. T. Emmons. (Museum of the American Indian 14/9022).

Coppers themselves (see illustration and history Swanton 1905a:146, fig. 22). As the drawings of Lisiansky (Fig. 16), and Vosnesensky (Fig. 12) reveal, Coppers used ceremonially by Tlingit chiefs or in succession rites were ornamented with designs of animal crests. If ornamented Coppers were equated with chiefs, it seems logical to assume that those replacing slaves as wealth goods or in sacrificial situations were equated with slaves, and thus those without names and unadorned may have been termed "spurious."

The messages of Coppers vary according to context, and possibly according to type of Copper, but correspond with particular forms or concepts in each culture. Although the uses and meanings lead toward explaining the significance of Coppers, the form and its symbolism seem arbitrary. In one sense a Copper is a work of art and therefore an entity in itself, a visual text condensing ideas of lineage continuity through

reincarnation, chiefly wealth and supernatural power which are not further analyzable into any specific object or set of objects. Yet consistent with all icons, it can be assumed that as a sign a Copper's shape and/or the particular components of its composition reflect formal as well as conceptual associations with particular objects (Eco 1979:190-213; Shapiro 1973). Its human and salmon characteristics seem more attributive than innate, therefore uncertainty remains as to what a Copper's unique form refers visually. Why the shape was adopted in the first place, how it came about, or what antecedents the Coppers may have been derived from are issues to be resolved.

II. The Early Development of Coppers in Historical Context

The Possible Pre-contact Existence of Coppers

Questions about the pre-contact existence of Coppers have been raised since the first one was seen by Europeans. Coppers could have been made of native copper since it was present in some abundance on the Northwest Coast judging by the accounts of the early explorers and traders, many of whom commented on the copper ornaments worn by the Northwest Coast peoples and speculated on the source of the metal. Yet, since copper was an important item of trade from first contact, there is uncertainty about these copper artifacts—whether or not they were introduced from outside or created by natives, and if the latter, made of native or trade copper.

To attempt to learn whether Coppers existed before contact two lines of investigation are pursued: 1) examination of the early records for evidence of the Copper's existence at the time of contact; 2) metallurgic and metallographic analyses of several Coppers to determine whether they were made of native copper.

The discussion first examines the Copper objects seen by Europeans in the early period; second, the availability of native copper in the Northwest Coast area; and third, the amount and type of copper objects introduced by Europeans and the shifting demands for and use of trade copper. Metallurgical issues are discussed in Chapter III.

Early Period 1741–1814

Europeans first arrived in the Northwest Coast area in the eighteenth century. The Russians, under the leadership of Vitus Bering, reached the Alaskan Coast in 1741. Other Europeans came with increasing frequency after Cook's voyage in 1778 when the value of sea otter skins to the Chinese became known in Europe. The trade for the skins reached a peak between 1792 and 1812, and for a few years thereafter it was dominated by Americans, most of whom came from Boston (see also Wolf 1982:182–83).

The European voyagers initially came for different reasons. The Russians, who had for some time traded sea otter skins to the Chinese, wished to extend their trading hegemony. The English sought a northwest passage to the Indies. The Spanish desired to extend their empire north from California. With an eye to empire, exploration and

surveying and charting of the coasts was, at first, paramount. Later, competition for the lucrative sea otter fur trade became the principal motive for voyages to the area. For a relatively short period of time, the Northwest Coast was an arena of intense activity. During one year alone, there were more than fifteen vessels in the coastal waters (Bancroft 1884:310). By 1814, with the near extinction of the sea otter, fur trading shifted inland for beaver, in particular, where it was conducted primarily at trading posts established by the Hudson's Bay Company. By 1840, the area was dominated by the Hudson's Bay Company in the south and the Russian American Company in the north. The documents and records of all the explorers and traders are the primary sources of information on Coppers and the uses and significance of copper metal during the early contact period.¹

Copper Objects of the Native Peoples seen by Europeans

The Russian expedition headed by Bering touched at Kayak Island in 1741. Although he never made contact with the Tlingit, he left cloth, beads, and iron implements in return for the native pieces he took (Gunther 1972:4). There is no mention of copper, however.

More than thirty years later, during the voyage of the Spaniard Perez [1774], Crespi, one of the chaplains, wrote of the Haida: "It astonished us also to find that the women wore rings on their fingers and bracelets of iron and copper . . ." (1969:239). In 1774 Fray Benito de la Sierra observed that: "the women pierce their nostrils, inserting there in a ring [which] appeared to be of copper" (1930:30).

The journal of Captain James Cook, who reached the Nootka area in 1778, includes many references to the native use of copper. Of the Nootka he said: "Both sexes bore their ears to which they had various ornaments, chiefly made of copper . . . the ornaments they most value are bracelets which they make of various materials; some were of iron and others of copper . . ." (Beaglehole 1967:314). Cook remarked that although the Nootka had both iron and copper, "there is little reason to believe that either belong to the place" (1784:300). James King, the officer who took command after Cook's death, noted that some Nootka were "cylindrical pieces of Copper hanging by a string through the Nose" (Beaglehole 1967:1406).

In 1779 the Spanish expedition headed by Quadra and Maurelle reached the Kaigani area of Haida territory where they traded with numerous Indians. Among the objects offered in trade were wristlets of copper and iron, and a piece of copper holding a topaz colored resin. "The married women were noticed to wear [copper] labrets while girls

¹The recorders of the history of the fur trade were the explorers themselves or participants of their voyages. A number of them were scientists; some were expert ethnographers. Fewer records dealing with the Indians exist after the end of the maritime trade. In the latter part of the nineteenth century, travelers, government officials, and missionaries were the principal recorders.

had only a copper needle in the lip . . . They [the men] also wore copper collars . . ." (Newcombe 1907:126).

At the same time Riobo observed that copper articles were even more common among the Tlingit: "Their arrows are finely made . . . most of them have heads of copper and iron" (Gunther 1972:16). Arteaga of the Bodega y Quadra expedition also commented on the numerous but not highly polished copper objects used by the Tlingit and the collars and bracelets they would only sell for an excessive price. He also noted the respect given a youth wearing a very bright piece of copper at the end of his queue which appeared in some way to be related to the signaling of the sun. He believed that copper . . . mines were nearby (1779:ms).²

Cook also commented on the prevalence of copper in the Tlingit area: "As to the copper, these people seem to procure it themselves or at most it passes through few hands to them" (1784:380). From earliest contact, European observers seemed to agree with Cook that copper was easily accessible for the Tlingit as it was not for the Haida or the Nootka, who were said to obtain it from the north. But they believed that the natives had obtained iron and beads from the Russians. The appearance and workmanship of copper objects (as well as the greater complexity of iron working) must have led them to assume that they were made of native copper by Northwest Coast peoples.

La Perouse (1786), making similar observations on the Tlingit, included a description of the Tlingit daggers made of iron and "some were of copper, but they appear not to give a preference to these. The metal is pretty common among them; they use it chiefly for collars, bracelets, and various other ornaments; and they also point their arrows with it" (1799:369).

In the Tsimshian area, Colnett (1786) met some Indians who had never seen a sailing vessel before, yet the chief's attendant had a weapon made of brass exactly resembling the New Zealand *patoo* with "Joseph Banks esquire" (the scientist on the Cook voyage) engraved on it. Observation of this artifact, of course, raised questions once again about the origin of other metal objects. He also observed men wearing masks inlaid with copper (1787:230). Colnett described the collars, bracelets, and some amulet-like devices worn by children in the Haida area:

Some of the iron and copper for the neck twisted like two strand rope and worn as a collar. They had bracelets of the same, but in general, they were very plain.

²" . . . tienen bastantes cosillas de cobre, y segun lo poco pulido de algunas, parese que las hazen ellos, hemos hallada minas de este metal, y otras que parese de plata, de las que llevan algunas piedras para aberguarlo . . .

un joven bien dispuesto que no tiene otro distintivo, que el traer un pedaso de cobre mui lucido al fin de la cola, miran y senalan el sol con un modo particular, que parese adoracion, pero no podemos decir que sean idolators.

. . . y sobre las suyas morriones, candelos y redes de pescar, cobre en collares, brazeletes, y anielos fierro en todo genero de sus armas, si bien estos dos metales nunca lo feriban a menos de recibir en excesivo precio . . ."

Another method of wearing the copper was beating it out very thin, fixing it round a piece of wood an inch in diameter and a foot in length fastened around the neck of their children and hung down before them . . . (1787:136 overleaf).

Hoskins, the clerk on the second voyage of the American ship *Columbia*, provided a more exact description of the copper collar: “. . . an ornament an iron or copper collar of an elliptic form twisted like a rope put over the head the two extremes laying on the breast this is worn by the chiefs only and appears to be a badge of distinction” (Hoskins 1941:235).

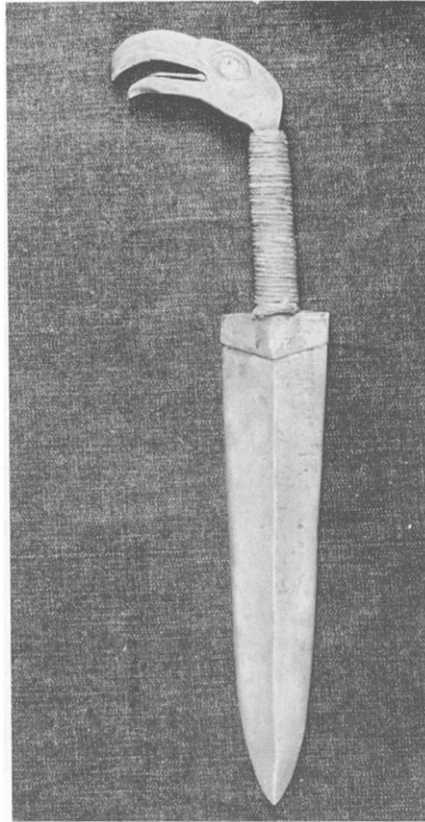
Notes made much later by MacKenzie (1875) on an ancient Haida collar provide additional information.

Twisted copper Necklet . . . This rare and valuable relic . . . was prized more highly than any ornament or implement in their possession, and of a certainty was made before the natives were acquainted with white men. Tradition states it was made from native copper brought from Alaska. Cap. Dixon (1788) mentions having seen such a necklet worn by a chief at North Island, and it is believed by old Haida who have been questioned on the subject that this identical necklet was the one that attracted his attention.

As a work of art by untutored savages with rude tools it is remarkable. Though it has three strands it is all in one piece, twisted most systematically and tapering with precision from the centre to each end, all the strands being in perfect uniformity one with the other. The history and former owners are known for two or three generations, but its origin is not known. It was worn by chiefs as a mark of their importance and descended in turn to each successor who was able to make a feast and distribution of property and take the place of the departed (1891:51).

Fleurieu, the recorder of Marchand's expedition which followed Dixon to Norfolk Sound (Sitka), described the Tlingit dagger, a fifteen to sixteen inch long weapon, two to three inches broad: “A Tlingit wears it in a shoulder belt in a leather scabbard and is never without it day or night” (1801:230) (Fig. 14). He also commented on a copper wire necklace worn by Tlingit women which “. . . appears not to be of European manufacture, it might be taken for a work of their own hands.” But then he contradicted this remark adding that they had insufficient technical knowledge to melt metal and draw it into wire, and finally concluded that it was made in a European settlement in the interior and came to the Tlingit by being traded from tribe to tribe (Fleurieu 1801:233).

Meares (1788) observed a piece of copper ore in the possession of the Nootka: “We once saw a piece of it which appeared to weigh about a pound through which a hole had been perforated sufficiently large for a handle to pass to make a kind of hammer.” According to Meares, the owner had received this artifact in barter from native people living to the north. Meares also believed that the bracelets and necklaces “were of the



14. Tlingit dagger or fighting knife (*gwuth-lar*) supposedly made of native copper. Collected by Emmons. (American Museum of Natural History E/877)

purest ore and to all appearances had never been in the possession of a European" (1967:247).

Vancouver was the first to reach the Kwakiutl, whom he encountered in 1792 and 1793. Menzies, the naturalist and surgeon on Vancouver's ship, the *Discovery*, observed that the Nimpkish pierced their ears for "appending ornaments either of copper or pearly shells" . . . (1923:82).

On his overland expedition, Alexander MacKenzie reached the Pacific coast in 1793 and noted of a Bella Coola village:

Copper and brass are in great estimation among them and of the former they have great plenty. They point their arrows and spears with it and work it up into personal ornaments such as collars, earrings, and bracelets which they wear on their wrists arms and legs . . . The brass is in thin squares. Their copper is in larger pieces and some of it appeared to be old stills cut up (1801:133).

Despite the prevalence and variety of copper objects seen by the explorers, only two descriptions of Coppers in this period have been

found. James Colnett was apparently the first European to see a copper. In 1787 he made a drawing (Fig. 15) of one in his log book and wrote this note:

Following is a sketch of their copper breast plate which is their underarmour and the wooden stays is the second case . . . their breast plates nothing would induce them to part with. Their iron and beads Capt. Dixon supplied them with but their copper must be procured from some distant tribe for I saw not the least sign of any mineral among them . . . (1787:136 overleaf).

Lisiansky was the next to record impressions of a Copper (Fig. 16), in this case a Tlingit example shown to him by Baranoff in 1805:

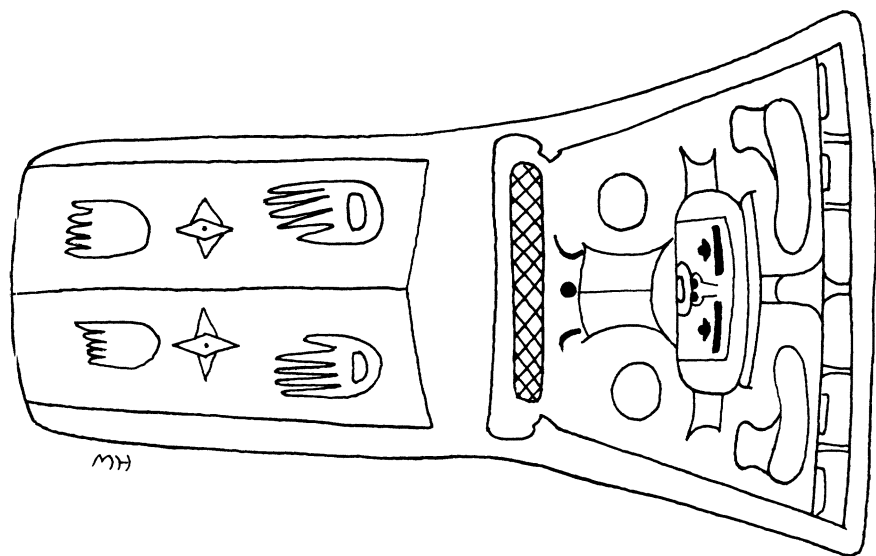
. . . a thin plate made of virgin copper found on the Copper River to the north of Sitka. It was three feet in length and twenty-two inches in breadth at one end, and eleven inches at the other, and on one side various figures were painted. These plates are only possessed by the rich, who give for one of them from twenty to thirty sea-otter skins. They are carried by the servants before their master on different occasions of ceremony and are beaten upon. The value of the plate, it seems, in its being made of virgin copper; for the common copper ones do not bear a higher price than a single skin (1814:150).

Both accounts describe fully developed Coppers (supported by drawings), and also imply the existence of others. Lisiansky notes distinctions between Coppers made of native copper and those of common copper. It is certainly possible that Coppers were made of native copper since there is abundant evidence for its existence in the area.

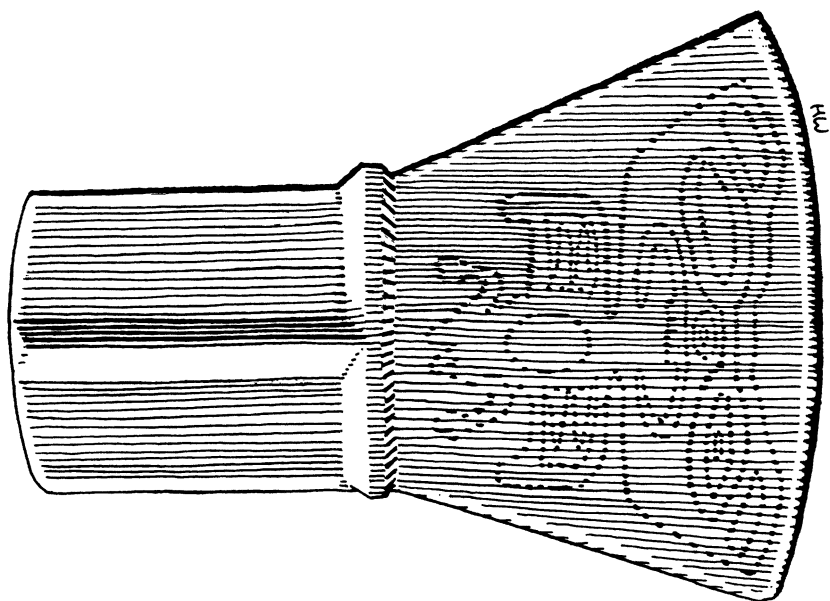
Sources of Native Copper

Copper, the most common native metal worldwide (Wertime 1973:873), occurs as native copper, which is the metal itself found in a metallic state, and in combination with rock and other minerals as ore. Native copper exists in many forms ranging from small grains to nuggets to large spongy masses or dense blocks varying in weight from a pound to several tons. Float copper, or surface nuggets, is mass native copper torn loose from a vein by a glacier. Native copper is distributed widely throughout North America, occurring either in place or as boulders in the drift (Drier 1961:139; Tylecote 1962:1). On the surface, native copper becomes oxidized and appears sometimes bright green or blue, sometimes yellow-brown or orange according to associated minerals. It was noticed and worked by Indians as early as 3000 B.C. in the Great Lakes area and subsequently in many locations throughout North America (Easby 1966:73-74).

In the Northwest Coast area large amounts of native copper have been found in the Copper and White River basins in both placers and lodes and in many other locations including Prince of Wales Island (Paulsen 1976:3-5), the Queen Charlotte Islands, and Hope Island near Vancouver. Canada is the third largest producer of copper in the world



15. Captain James Colnett's drawing (copy) of a Copper. (*The Journal Aboard the Prince of Wales* 1786-88:136)
 16. Drawing (copy) of a Tlingit Copper by Urey Lisiansky (1814:146)



today, with thirty-five percent of the product coming from British Columbia. Copper ore, which is mined and then smelted, was not accessible to the Indians (Rathjen and Hague 1977:217); nevertheless it is apparent that they could have obtained native copper from many sources. In the Tlingit area Meares observed that copper abounded among the various tribes and was the medium of barter with the southern Indians: "we have seen in their possession masses of considerable weight from mines of extreme fineness. They told us they went far northward for it and found the ore in the earth scattered about" (1967:lix).

Some of the early observations were supported by later investigators. The Copper River was generally conceded to be the major source. Lisiansky stated that it abounded in virgin copper, but the inhabitants kept the spots where large pieces could be found "a profound secret" (1814). Wrangell wrote of the Ahtna, the principal copper-working people in the Copper River area: "Among all these people the territory of the Ahtena was known until the arrival of Europeans for the copper found there; the natives hammered from this metal hatchets, knives and breastplates [Coppers] for themselves and to sell to Eyak, Tlingit and other peoples" (VanStone 1970).

In 1844, copper was also found by John Dunn north of the Stikine (1844:293), in 1859 by William Downie and other gold prospectors in every range of the Skeena river (Large 1958:59), and in 1962, Francis Poole discovered a vein of copper in the Queen Charlotte Islands (1872:99). Matthew Macfie, recorded the wide geological occurrence of copper and wrote of "specimens of copper nearly pure taken from Deer Island in the neighbourhood of Fort Rupert . . . I have seen pieces of pure copper taken from Stickeen River where the natives prepare it for useful and ornamental purposes" (1865:152-53). William H. Dall, who visited the Ah-tena in 1869, in the basin of the Ahtna or Copper River, made the following observation on native copper: "I also obtained from them a piece weighing about five pounds of the celebrated native copper, found in the bed of the river on which they live" (1877:34).

Evidently native copper was available in every region of the Northwest Coast, but generally in small amounts except in the Copper River area and to a lesser extent, the Stikine and Skeena areas. The copper-working competence of the native Americans is discussed below, but it was possible for them to have made the objects described by the explorers, including Coppers from native copper. They also could have fabricated Coppers out of the large quantity of trade copper which was introduced at this time.

Amount and Type of Trade Copper Introduced in the Early Period

Demand for trade copper fluctuated over time and according to area, leading the traders to make additional observations on the importance of

copper to the natives and the amount and type traded. After their arrival in the Northwest Coast area in 1741, the Russians traded for sea otter in Alaska and later in the Aleutians. The Russians practiced a method of trade which forced the Aleut to pay tribute in furs by taking their children hostage or by depositing gifts with chiefs which included clothing and copper kettles (Coxe 1804:137,261). Trade objects moved ahead of the Russians, as Cook noted when he saw blue beads on a chief's cap on his visit to Prince William Sound in 1778 (1784:355). Trade copper thus could have arrived in the Northwest Coast area not long after 1741. But judging by the demand for copper recorded in the accounts of subsequent expeditions, the amounts, if any, were very limited.

In 1778, in the Nootka area, Cook observed:

Nothing would go down with them, but metal and brass was now become their favorite, so that before we left the place hardly a bit of brass was left in the ship . . . Whole suits of Cloaths were stripped of every button, Bureaus &c of their furniture and copper kettles, Tin canesters, candle sticks &c all went to wreck (Beaglehole 1967:302).

Samwell, the surgeon on board the *Discovery*, wrote that plates of tin, pieces of copper or brass, and some old swords were traded to the Indians for skins, and that although the Indians were acquainted with iron "they prefer Brass or Copper to it which they use as ornaments for their Persons; brass buttons and copper halfpence they are very fond of" (Beaglehole 1967:1096).

Colnett's report of his second voyage in 1789-91 noted that in 1791 he had traded a sheet of copper for three otter skins in the Nootka area (1940:202). As Howay, the editor of Colnett's journal, remarks, sheets of copper were almost legal tender in this vicinity at the time (Colnett 1940:189).

Haswell, second mate of the American ship *Columbia*, reported that copper and clothing were the principal trade articles in the Queen Charlottes (Howay 1941:195). On the second voyage, Hoskins, the clerk, said "all these places have the same liking for Copper and Muskits that they have at Nootka Sound . . . The price of a Skin at Nootka Sound is ten iron Chizzels, six inches square of sheet Copper or ten Copper bangles . . . [but] at Queen Charlotte's Sound . . . Copper will not do" (Hoskins 1941:485-86).

The records of cargo purchases for this voyage show two items for copper:

Herman Brimmer 143 sheets Copper 2293 ¼ lb . . .

John Pintard 124 sheets Copper 1202 lb . . .

(Hoskins op.cit:460).

On his second voyage Hoskins remarked that Copper was steadily in demand although fault might be found with the size or thickness of sheets, but copper was not preferred in the Queen Charlotte Islands. Yet

if the amounts of copper sheeting listed above by Hoskins are typical of ships' supplies, it is obvious that the total quantity of copper on the Northwest Coast could have increased very rapidly during the latter part of the eighteenth century. "Six inches square sheet copper" is the only reference to size up to this time. Copper sheathing removed from wrecked ships has been proposed as a source of the metal for Coppers, but copper for ship repair or trade which evidently was abundant, could also have served. Meares, who reached the Nootka area in 1788, notes that one of the ships in which he sailed, the *Argonaut*, was sheathed with copper (1967:106). He later received a letter from B. Duffin who wrote in 1789 that since the Americans had no copper to purchase with, the natives were reserving their prime skins until a copper ship appeared (1967:appendix).

In 1788 Ismailov came to Prince William Sound to establish Russian rights to the territory by putting five copper tablets with coats of arms in burial caches; the tablets later disappeared (Bancroft 1884:269-70). At the same time he gave ornaments of copper to chiefs Atasha and Ilchak, telling them to wear them on the outer garment as a sign of friendly intentions to the great Russian empire and protection against foreign ships (Bancroft 1884:329). According to DeLaguna, Ilchak's ornament was traded by 1794 (1972:347). The Russians also traded clothing, iron, kettles, and stills, which the Tlingit were eager to purchase (Coxe 1804:327).

The Spanish contributed to the supply of European copper in the Northwest Coast area. In 1790, Revillegigedo sent Lt. Francisco Eliza to Nootka Sound carrying ten cases of copper sheets to exchange for pelts (Archer 1978:78).

Records from the voyage of Marchand, a French explorer, noted the Tlingit preference for copper basins, stew pans, and clothing among other objects, and observed that the pots sold in the morning were already put to cooking by afternoon. He described how the Tlingit extended their trade by bartering new goods for more sea otter skins (Fleurieu 1801:190,193-94). Later when the Haida were visited at Cloak Bay, the following observations were made of the habitations and their contents:

there were also seen sheets of copper, large pieces of bar iron, hatchets, adzes, joiner's chisels, plane irons, daggers and lances, the whole of English manufacture mingled and confounded with American [Haida] lances, fish hooks . . . and other weapons tools, implements utensils and dresses which may be called indigenous . . . (Fleurieu op.cit.:282).

John Bartlett of Boston noted an increasing demand for copper at this time (1791): "Five prime skins for a sheet of copper or one skin for two feet of bar iron . . ." (1925:301). He also described a Haida chief's retaliatory attack on Captain Kendrick of the *Lady Washington* and the

plundering by his warriors: "They went to work and divided up the copper that lay upon the deck" (Ibid.:321).

On a second voyage in 1792, Ingraham, who on his previous visit had successfully traded with the Haida the iron collars he made, could not obtain more than one skin for each collar. He stated: "Copper which they never wanted when we were here last year, was now asked for. I had plenty, but it was all too thin" (1971:192). Menzies, the naturalist with Vancouver (1792-93), said that the Kwakiutl esteemed most sheet copper and blue cloth (1923:87; also Vancouver 1798,2:303). On a later voyage Vancouver traded copper to the Bella Coola and Haisla (Vancouver 1798,2:276; 1801,4:303). A manuscript written in 1788 by an unknown author, who participated in Vancouver's voyages, summarizes many aspects of the trade situation:

All the Indians that we have seen this year on the coast have preferred copper to all other articles . . . But of all the different things they get the woollen cloth is almost the only one seen among them a second time . . . Perhaps the other articles they send inland to Barter . . . some of the Masters of the Merchantmen told me they saw articles among Indians in the latitude of 46° that they sold to Indians in the Latitude of 55° and 56° North (Meany 1915:63) . . . More and more ships [arrive] every season . . . and those that gave the most got the most. A sheet of copper that at one time wou'd purchase four skins at last [sic] wou'd not purchase at some places one . . . (Meany 1915:65)

The trade at present is carried on chiefly between the Columbia River . . . 46° . . . and Cross Sound 58°. But to the north of that the Russians monopolize everything . . .

Besides Fire Arms, Woollens and Warm Cloathing are in general request . . . and also Cooking Kettles, Copper in sheets no further than 53° Lat. (Meany 1916:68).

Espinoza y Tello of the voyage of the *Sutil* and *Mexicana* encountered the Kwakiutl at about the same time as Vancouver. He described Vancouver's ships noting that "Both ships were sheathed in copper and their hulls were much polished" (1930:58). Later while exploring Vancouver Island the Spaniards traded a fourteen-pound sheet of copper for two skins offered by two Indians, probably Kwakiutl (Ibid:88). Espinoza commented that members of the expedition were unable to satisfy their curiosity concerning the use to which the Indians proposed to put the great quantities of copper which they were acquiring:

They used little of it for purposes of personal adornment, while they received a great deal in exchange for skins from the ships which engage in this trade . . . Macuina [Nootka chief] said that in the year 1788 he had sold skins at the rate of ten for a sheet of copper to Captain Meares, and today the rate of exchange is a sheet of half an arroba in weight for each skin of the best quality. In our brief intercourse with the Nuchimases [probably Kwakiutl] we did not find that they

would give us three skins of normal size and quality for two sheets of an arroba in weight (Espinoza y Tello 1930:90).

John Jewett, one of two survivors of the *Boston*, and the ship's armourer, recorded his experiences as a slave of Maquinna, the Nootka chief. He described the *Boston*, which he said was well coppered. During his enslavement, Jewett began to make copper and steel bracelets for Maquinna and his wives to wear and to sell to visiting tribes, but there is no mention of trading the copper itself (1815).

The fur trade flourished during 1804–1807 when 59,346 sea otter skins were taken by the Americans alone. In contrast by 1814 only 6200 skins were traded. During this period large amounts of European trade copper were introduced into the Northwest Coast area, and received initially by the Nootka, Haida, and Tlingit. According to various accounts some of it was quickly traded. Chiefs, powerful heads of lineages, controlled the trade networks and were the main agents of the fur trade (Wolf 1982:186). In this early period, a large amount of the trade copper received by the coastal Indians was apparently traded to acquire furs from other tribes in order to augment their trading capacity with the Europeans. The value of trade copper fluctuated in accord with its supply and demand and in tandem with the supply of sea otter, in particular. The exchange rate of a six-inch square of copper per skin (Hoskins), or ten skins per sheet in 1788 changes to one skin of the best quality per large sheet (Espinoza) in a short period of time. It is also evident that each location set its own values for other reasons that are not apparent. The trading of copper, initially fortuitous—that is, at first merely undertaken in response to the demands, or in some cases, thievery of the Indians—developed rapidly into an almost standardized exchange as Vancouver's notes imply.

Trade copper quickly became an item of exchange among Northwest Coast peoples and inland groups. MacKenzie in 1793 remarked as he neared the Bella Coola area that he was told by inland people that the road to the sea was short: "It occupied three, they said, no more than six nights to go where they met the people who barter iron, brass copper, beads &c with them for dressed leather and beaver, bear lynx fox and marten skins The copper and brass they convert into collars, arm-bands, bracelets, and other ornaments" (1801:254–55). When he reached the Bella Coola area he noted: "I presume they find it [copper] the most advantageous article of trade with the more inland tribes" (MacKenzie 1801:333). Vancouver had noted of the articles he gave to the Nootka that "excepting the copper they bartered away on deck every article . . . for others of infinitely less utility or real value consisting of such things as they could but appropriate to the decoration of their persons and other ornamental purposes, giving a decided preference to copper" (1798,1:263).

Despite the abundance of trade copper, of which Coppers could have

been made, only the two Coppers recorded by Colnett and Lisiansky were seen during this period, both in the northern area. Two inferences can be made: either the potential use of trade copper to fabricate Coppers was not perceived at this time, or Coppers were such valuable objects that they were secreted and thus not visible to the explorers and traders. Given the subsequent decline in desirability of trade copper toward the turn of the century, the former seems the more plausible assumption, for which additional support is found in Fleurieu's description of the sheets of copper in a Haida house. Considering his careful notes on other objects, if these had been Coppers, it seems likely that they would have been so described. A further inference is that Coppers were only made of native copper and that they were very rare.

Trade copper, a major item of exchange in the fur trade period, was evidently an important stimulus to that trade. It rapidly became commonplace and widely distributed throughout the area, though differentially accessible. Trade copper played a major role in the development of Coppers, and therefore, to determine the source of the metal they are made of, the type of European copper traded, its manufacturing techniques, and chemical composition must be examined.

Type of European Copper Traded 1750-1840

At first, trinkets or trifles of brass and copper were offered in trade, but sheet copper used for sheathing ships' hulls, which soon became the major trade material during the early fur trade period, had a significant effect on not only the numbers of Coppers but also their configuration.

Copper sheathing was an important British invention. It was intended to protect wooden ships against the destructive sea worm and to keep them free of weed, thereby enhancing their speed. Copper sheathing was enthusiastically greeted by some members of the Royal Navy after its first use on the *Alarm*, but later controversy arose because of the problems of protecting the iron bolts, which were used to fasten ships' timbers against what is now known to be the galvanic action between iron and copper in sea water. A satisfactory bolt of an alloy of copper and zinc was finally developed and in 1785, George III ordered all ships of the Royal Navy to be copper-bottomed (Great Britain 1799:668; Harris 1964:49; Knight 1973:301). The practice quickly spread to the mercantile marine. From 1780 to 1782 eighty-two capital ships had been coppered (Knight 1973:303). Copper sheathing became a munition of war since it increased a ship's speed and maneuverability. It also provided an economic advantage in the slave trade, because a faster passage meant fewer lives lost (Harris 1964:8,50), and presumably it was similarly advantageous in the fur trade of the Northwest Coast.

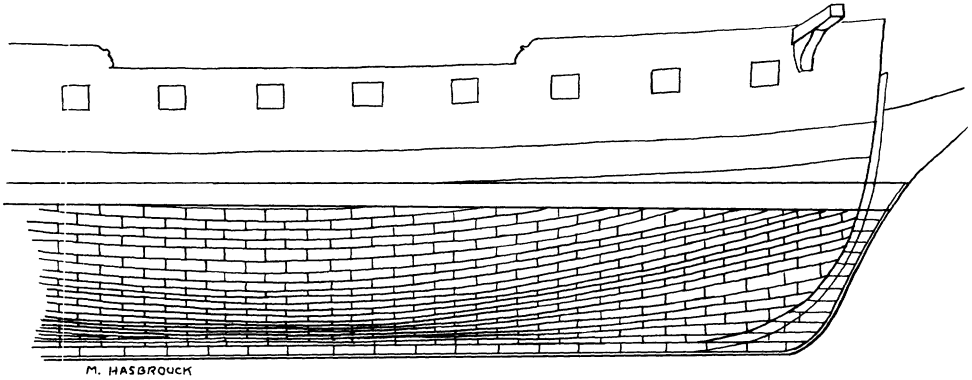
The production of copper in Europe at the time of European contact with the Northwest Coast area was to a large extent still a craft carried

out in many places (Great Britain 1799). However, by the end of the eighteenth century, Britain was the first copper-producing country, with Norway and Sweden following. Virtually no copper was produced in North America at this time (Hamilton 1926:465).

Industrial smelting first took place near the mines of Cornwall, the principal source of British copper, but was later transferred to Neath and after 1720 to Swansea (Leifchild 1855:228). Around 1770 copper mining in Cornwall was outstripped by the Welsh mines at Anglesey, but later, when these mines failed, Cornish mines again flourished from 1800 to 1850. The ore was mined, broken into lumps of one or two pounds, and shipped for smelting. On arrival, regardless of source (foreign or domestic) it was deposited in piles with other ores so that a general mixture was formed (Leifchild 1855:234). The Swansea smelters produced 90 percent of British copper (Leifchild 1855:74) and by 1860, 90 percent of the world production (Hamilton 1926:521).

Copper smelting and refining were at first matters of trial and error. The production processes as survivals from antiquity involved a series of oxidations and reductions intended to eliminate the sulphur in the ores (Hamilton 1926:622). The metals that were obtained were not chemically pure and the methods depended on the expertise of individual workmen. Experience enabled them to judge the moment when the copper was ready for lading rather than any scientific procedure (Percy 1861:366-68). Between 1750 and 1850 copper producing in Europe became stabilized, and to a certain extent, processing was standardized. At the end of the eighteenth and during the first half of the nineteenth centuries, no new metallurgical processes were invented, but old ones were improved and there was an increase in the use of mechanical devices (Hamilton 1926:522). Manufacture became more specialized in response to the demands for the ultimate use of the metal, which at that time included household utensils, sheathing for ships, coinage, copper wire, engraving plates, bottoms for rum and spirit boilers, and alloys for guns and bells, copper piping, and the fine arts (Gates 1951:vii; Harris 1964:177-78). Certain practices were introduced into the refining process to fit the copper for its eventual use. For example, the relatively pure "best selected copper" was skimmed off the top and reserved for the production of brass and wire. The remaining "bottoms," or coarse and common copper, which contained certain impurities such as tin and antimony, were cast into small rectangular-shaped pieces known as tile copper or made into cake copper—rectangular slabs—intended for rolling and wire drawing. Further processing of cake to make "tough cake" took place in a reverberatory furnace, and included the alloying of small amounts of lead to increase malleability (Percy 1861:326-29). Most of the tough cake copper was rolled into sheets for the sheathing of ships' hulls, for still and boiler bottoms, and for export.

The rectangular cakes or slabs were hot rolled to flatten the sheet partially to size, and then finished by cold rolling with annealing when



17. Method of applying copper sheathing to a ship's hull. (Copy of an illustration in Knight 1973:298)

necessary (Davis 1926:222; see also Harris 1964: 177–78 and Ure 1847:330–31 for exact descriptions of the process).

The government established a mill at Portsmouth for the manufacture of copper into sheets and bolts for the Navy. The copper came from the Welsh smelters whose mills also supplied sheet copper to the yards where the merchant ships were coppered. Sheets of various weights were used, but the sizes were standardized to four feet by fourteen inches. The sheets were rolled to different thicknesses—twenty-two ounces of metal to the square foot being reckoned very stout sheathing (Leifchild 1855:239). Difference in weight amounted to only a few ounces between the heaviest and lightest sheets, which were dispersed along the ship according to need. They formed parallel bands and were laid like bricks (Knight 1973:298) (Fig. 17). Each piece of sheathing was pierced with holes around the edges, and there were three to five rows of flat-headed nails per sheet (Whiteman 1971:39). Places to nail were indicated by running a small perforating wheel along the edges (Pratt 1952:24). Each sheet overlapped the one behind it. The visible surface of a copper sheet was forty-seven by thirteen inches. Sheets ranged in size from fourteen by forty-eight inches for twenty-eight and thirty-two ounce sheet to twenty by forty-eight inches for eighteen ounce sheet.³ Although these specifications were standardized for the Navy, the practices were more haphazard for the merchant fleet. Each shipyard developed its own methods of coppering.⁴

Copper sheathing was first used on an American ship in 1777 (Pratt 1952:24), but before 1800 it was used primarily by the U.S. Navy. Americans attempted copper manufacture during the War of 1812, but

³N.E. Upham, Curator of Models, National Maritime Museum, London, provided these figures in a letter dated 5 May 1978.

⁴I am indebted to the late Dr. Melville Jackson, then Director of the Maritime Museum, Kings Point, N.Y., for this observation made in a telephone conversation, 1978.

when trade with England was resumed, returned to importing British copper sheathing which was always preferred to the American. The grading of U.S. ships' copper corresponded to its malleability—English, Soho (New Jersey), and old—and sheathing was warranted accordingly; seven years for British copper, five to six for Soho, and two to four for old (Whiteman 1971:141). Copper sheathing continued to be the major use of copper in the United States until about 1840. Whalers and ships engaged in the China (fur) trade stopped at New York to have their ships' boot coppered—nailing sheathing upon sheathing (Whiteman 1971:154).

In England the quality of copper sheathing changed in 1832–33 (Percy 1861:507). The Royal Navy purchased no new sheathing between 1815 and 1832, but instead melted and remelted the old. Then foreign ores (from Chile and elsewhere) began to be combined with British in the smelting process, a possible cause of deterioration in quality. The sheathing of the early period endured for eighteen years, but that manufactured after 1832 corroded easily (Percy 1861:505). The continual difficulties with copper sheathing and its high cost led to various attempts to use other metals. The French and Dutch adopted zinc sheathing (*Société de Mines* . . . 1844:2–8), and the British began to use copper with a small amount of phosphorus as an alloy (Percy 1861:514–16). The most widely used substitute for copper was Muntz metal, an alloy patented in 1831 which consisted of 60 percent copper and 40 percent zinc. In spite of its drawbacks, Muntz metal replaced copper sheathing in the 1840s and '50s for the merchant service. Copper was retained for the Navy, however (Percy 1861:519).

During the early period even though ships came from many countries, it is likely that most of the sheet copper traded on the Northwest Coast was of British origin. Besides the trinkets and kettles that reached the area, small amounts of heavier copper could have been introduced in the form of ingots (produced for the East India Company) or still bottoms (traded to the Caribbean). MacKenzie (1793) reported seeing copper which appeared to have been cut from stills.

Copper-clad ships had a significant impact on the peoples of the Northwest Coast. The recurring myth of a copper canoe as the source of copper and Coppers may be ancient, but it also reflects the reality of arriving copper-clad ships once coppering became the norm. Moreover, the size and rectangular shape of the copper sheets conform to the size and general proportions of the Copper's shape, a subject discussed in detail below. The following section summarizes the changes that took place with the fading out of the sea otter fur trade, the possible introduction of a different type of trade copper, and the impact of disease and population loss on the Northwest Coast peoples.

The Later Period 1840–1920

The later trade period was characterized by the increasing impingement of Europeans on the Indian societies with such results as the grouping

of Indians into larger settlements—some near trading posts; the decrease in population through disease, particularly smallpox and syphilis; and the modification of religious practices in response to missionary influences. Although the fur trade continued, it was institutionalized and channeled through established trading posts.

Around 1820, after merging with the Northwest Company, the Hudson's Bay Company began to extend its trading activities in the Northwest in order to dominate the fur trade. It was concerned not only with outdoing its American competition in the coastal trade, but also with advantageously situating its forts and trading posts according to native trade patterns (Merk 1968:300). In consequence, Fort Simpson was established on the Nass (1831) where Haida, Tlingit, and Tsimshian congregated in the spring for the eulachon run. The Company's strategy of cutting the price of merchandise and paying high prices for furs to drive out American competition was not successful, so a later strategy encouraged by Governor Simpson resulted in the conduct of coastal and riverine trade by steamship (Merk 1968:330).

The steamships broke the monopoly of the Skeena River valley trade traditionally held by the Tsimshian, middlemen between inland and coastal people (Large 1958:10–11; Robinson 1962). The coastal Tsimshians, who dominated the trade, bartered with the interior people for skins which they traded on the coast to Europeans and to Haida and Tlingit. However, John Work, traveling on one of these ships in 1834–35, reported that he found the Indians demanding exorbitant prices for their furs, possibly holding back in expectation of American traders. They would even refuse seven blankets with rum, molasses, and rice for one sea otter (Lewis and Phillips 1923:59).

Eventually, the increasing domination of Europeans brought about major changes in Tsimshian culture, magnifying certain traditional patterns and providing access to new goods and greater wealth. Fort Simpson, moved from its first site, became permanently established on the coast midway between the Nass and the Skeena Rivers. As it became the trade center and meeting place for the different peoples of the region, many Tsimshians established permanent residence there. Through their trading activities, the Tsimshian became the wealthiest of the Northwest Coast peoples (Usher 1974:29–30); nevertheless, like the other native peoples they became increasingly dependent as noted by Governor Simpson in a letter to Governor Pelly in 1837:

Our different trading establishments are the resort or refuge of many of the natives . . . If the trade were again thrown open to competition all the horror would break out afresh; drunkenness and demoralization . . . The fur-bearing animals would in the course of a very few years become nearly extinct; and the inevitable consequence would be the desertion of the natives by the traders. That unfortunate population thus left to their own resources must inevitably perish from cold and hunger, the use of the bow and arrow and other rude implements formerly affording them the means of feeding and clothing themselves being now unknown and our guns ammunition fishing-tackle, iron

works, cloth blankets and other manufacturers having become absolutely necessary to their very existence (Merk 1968:337).

The Hudson's Bay Company established forts along the coast, including one near the present site of Vancouver in 1834. Once conflicting interests with the Russians had been resolved and territorial boundaries set in 1839, the Company also established trading posts at the mouth of the Stikine and Taku Rivers. These posts and others up the Skeena, at Masset on the Queen Charlotte Islands, at Fort Rupert (1849), and Victoria were supplied by steamship (Drucker 1955:32-33; Merk 1968:314-15).

The Russians continued trading with the Tlingit, but also attempted to extend their hegemony farther inland after the decline of the sea otter trade. Under various pretexts they withdrew the privilege of free navigation in their territory (Merk 1968:315). By 1840 the Northwest Coast was dominated by the Russians in the north and the Hudson's Bay Company in the south as far as Vancouver and Victoria, a situation that continued until the United States purchased Alaska in 1868.

Since the Russians hardly modified their trading practices, the impact of change was less harsh for the Tlingit at this time than for the Haida, Tsimshian, and Kwakiutl, whose lives were severely changed during the Colonial period beginning in 1849 when the Hudson's Bay Company was given title to Vancouver Island. The mainland colony of British Columbia was established in 1858 and the two were combined in 1871. Rights to the land were acquired from the Indians, reserves set, and trading posts established. The Haida, now lacking the sea otter which had enticed the traders to their coasts, traded increasingly at Fort Simpson or in Victoria, making the long journey in their great canoes usually between March and September (Brink 1974:33). When lands were taken and reserves fixed, a large part of the Kwakiutl population of Vancouver Island settled in the Fort Rupert area, where they became increasingly dependent on the supplies of the trading post. All these people—the Haida, the Kwakiutl, the Tsimshian, and eventually the Tlingit—traded in Victoria as well, where in 1881 the streets of the town swarmed with Indians of all kinds (Jacobsen 1977:5). The Indians came to trade furs, to seek employment, or to sell fish to the canneries. The skins they brought were sent to London where the Hudson's Bay Company acquired items of European manufacture which its agents in Victoria took as far north as Alaska and as far east as the Rocky Mountains to supply its numerous branch stations (Jacobsen 1977).

After 1830 the Russians and the Hudson's Bay Company were the principal suppliers to the Indians of trade goods. Trade among Indians continued but was dominated increasingly by powerful chiefs heading the peoples advantageously situated near trading posts. During this stage warfare and slavery also increased (Wolf 1982:189-92), but by 1850 the fur trade had begun a serious decline and by 1858 the Hudson's Bay

Company's rights in the whole region had ended and British Columbia became a crown colony (Williams 1983:68). Trade copper played a diminished role in comparison to that of the early period, and was largely superseded by spirits, firearms, ammunition, blankets, rice, and molasses. The type of copper also had changed.

In Europe and America a rapid succession of inventions introduced new uses for copper manufacture as copper-clad ships began to be replaced by iron in 1840 and disappeared after the Civil War (Chatterton 1910:124, 151). Boiler plate was necessary for locomotives and steamboats, and copper sheathing was used for roofing, stills, and waterworks (Whiteman 1971:121). But competition with iron for manufacturing pots and pans, boilers, and other equipment brought about a weakening in the world price of copper which reached a crisis by late 1865 (Gates 1951:8).

The fluctuation in European demand for copper influenced the amount of copper traded in other areas of the world. Copper supplies and copper demand were sensitively calibrated. When copper was expensive or in short supply, less of it was available for trade in distant lands. Conversely, it is likely that larger quantities of copper reached the Northwest Coast after a price decline. After such a decline in 1798 large amounts of cake copper were sold to the East India Company for use in trade (Great Britain 1799:48-49), some of which may have found its way to the Northwest Coast as noted above. The depressed copper market in 1865 may have resulted in the trade of excess copper in the Northwest Coast area. In fact, it is at this time that numbers of references to Coppers occurred. Any excess copper available for trade would have been intended for current European markets and thus probably consisted of the heavy sheet suitable for boilers and stills, rather than the thin sheathing sheet traded before 1840. Moreover, after 1840 the manufacture of copper took a different turn with the opening of the U.S. Lake Superior mines. At first U.S. processing followed long-discarded Cornish methods, but by 1880 bessemerization of ores was taking place (Aitchison 1960:523), followed soon by electrolytic refining which permitted the production of copper of 99.95 percent purity.

Copper was purchased in London by the Hudson's Bay Company to be used in trade with the Indians. The Company is reported to have traded Coppers or sheet copper to the Indians for their furs at various trading posts and later in Vancouver. One of the Company's documents records a shipment of old copper to Fort Rupert (Fig. 18). The original source of the copper is unknown. The sheet copper introduced during the later period, which could have consisted of heavy sheet, was, as before, differentially accessible. Greater supplies were concentrated among those people near trading posts. Even assuming that heavy copper sheet was introduced, it did not *cause* an increase in the numbers of Coppers; there were also underlying social and economic reasons. But both demand and access influenced the total number of Coppers

Victoria Depot To Fort Rupert D^{rs}

1865
 20 T 2 3/4 Cwt old Copper
 252 empty Pioneer Slogs
 2 1/2 Cwt 3 no lamed Rope
 12 new Drawing Snives
 2 Cwt Pick
 1000 Shells 3019
 4000 1 3020

W. B. L.

18. Item for 3 3/4 CWT old copper listed for delivery to Ft. Rupert on the Steamer Labouchère October 20, 1863. (British Columbia Provincial Museum Archives, Hudson's Bay Company records)

and the change in the type of European copper used which differed according to ethnic group. For example, there are many large Tlingit, Haida, and Tsimshian Coppers made of heavy plate, but few Kwakiutl and Bella Coola.

Although the type of trade copper available to Northwest Coast peoples probably changed from the thin copper sheathing traded in the early period, the value set on copper endured throughout the century as illustrated by Schwatka's writings on the Chilkats he visited in 1893: "As the Brown Bears or Cinnamon Bears as they are generally called are the highest clan, so copper is their most highly prized metal. With copper the Chilkats have always been familiar . . . and therefore a brown bear's head carved in copper is their most venerated charm . . ." (1893:41). Considering the greater number of observations of Coppers after 1840, they were playing an increasingly prominent role in Northwest Coast culture at that time.

Coppers 1840-1920

Ostensibly Colnett and Lisiansky were the only Europeans to record evidence of Coppers in the early period. In 1844, a Russian artist, Vosnesensky, drew scenes of Tlingit life, including several of the memorial of a chief in which appears the representation of a Copper placed at the left of the deceased (Fig. 12). According to the text, roughly translated:

The deceased is wearing an elaborate head-dress depicting a human face with upright walrus whiskers. His property is disposed around him; various chests with his clothes and other valuables; on top of these lie three headdresses, one a truncated cone-shaped wide-brimmed hat, others like the one he wears; behind are spread the patterned blanket robes. Near the reclining body a copper plate leans against the chests. [Footnote] The plate is made from a sheet of copper in the form of a shield 90 centimeters in height. The decoration on the front is characteristic of Tlingit ornamentation; highly valued by the Tlingit; only the rich own them (Blomkvist 1951:290).

The somewhat imprecise sketch shows the face of a bear or other animal on the upper half of the Copper and rather indistinct forms on the lower portion. The T form is not well delineated, but the general outlines clearly portray a typical Copper, and further, evidence of the Copper's ceremonial use.

John Dunn, a traveler who reached the Northwest Coast area at about the same time, commented on the value of Tlingit Coppers, the source of the metal and the methods of their transmittal:

North of Stikine are the Chilkasts. In their country great quantities of virgin copper are found. Some of it is worked by the natives into a kind of shield about two and a half feet by one foot with figures of men and animals engraved on it . . . One of them is estimated as worth nine slaves; and is transmitted as a precious heirloom from father to son (1844:288).

The Coppers of the Kwakiutl were not mentioned until 1866, when the naturalist, John Keast Lord, visited the area near Fort Rupert:

When staying at Fort Rupert, I saw by mere chance what the Hudson's Bay trader called an "Indian Copper." He told me that it was at only very high festivals that it was ever produced and that its value to the tribe was estimated to be 15 slaves, equal to 200 blankets. This wonderful "medicine" was contained in a wooden case, most elaborately ornamented on its exterior with differently shaped pieces of nacre neatly inlaid, brass-headed nails, and pieces of bone. The inside was lined with the softest kind of cedar bark. The "copper" was two feet four and a half inches in length, wider at one end than the other, the wider end of one foot six and a half inches; and brilliantly painted, representing all sorts of curiously-shaped devices, interspersed amongst these were eyes of all sizes. It was made from a solid piece of native copper, that had been hammered flat. The trader also told me that some imitation "coppers" had been made for the company and offered to the Indians but nothing would induce them either to purchase or have them as a gift . . . It belongs to the tribe, not to the chiefs and is kept by the "medicine-men" or doctors, rain-makers and scoundrels in general (1866:257-59).

Beginning around 1870 many more references were made to Coppers by travelers and missionaries, either because they became more prevalent or because the observers had greater opportunity or inclination to witness Northwest Coast societies close at hand. Alexander MacKenzie, an employee of the Hudson's Bay Company, spent some time among the Haida at Masset in 1878. He provided comprehensive information on the significance of Coppers. Two he collected (for one specimen, see Fig. 31) were claimed to be the only "antique" Coppers "made before the natives procured copper from the Russians in Alaska. They had been in the possession of the same family through a long line of chiefs who displayed them on festal occasions. A chief named Edensaw, now long deceased, used to wear them bound one to each side of his head-dress (tsilk) on occasions of ceremonial dances, etc."

In his notes, MacKenzie included other specific information about Coppers in general. He said that Coppers were formerly valued at ten slaves or one thousand blankets and were greatly venerated. A chief who purchased such a Copper and cut it up and distributed the pieces to other chiefs was honored. The original Coppers were brought from northern Alaska and according to tradition were made of native copper, but later Indians bought sheet copper at Sitka and in Victoria and manufactured spurious coppers which ultimately produced a fall in the value of Coppers and "destroyed the romance of the idea that the Copper was one of earth's rarest and choicest treasures, fit only to be purchased by great chiefs" "Old Coppers were named to perpetuate their identity when they changed hands as well as the history of their exchange and value." MacKenzie also said that sometimes Coppers were attached to mortuary receptacles. He was the first to mention the Coppers' differentiation in size, which he said varied from eight inches

to four feet long. He described the blackening of Coppers by a secret process, the devices engraved on them: bear, eagle, crow, whale, and the significance of the T cross which the Haida called the back bone, claiming that "on the skill with which this was executed depended in great measure the value of the 'copper' " (1891:52-53).

In 1876, the Reverend Collison established a mission at Masset, shortly before MacKenzie arrived. He observed the Haida over many years and remarked on the distribution of Coppers at potlatches (1915:140), but the most interesting information was the following description of Edensaw's arrival:

Edensaw, the chief, arrived with slaves in his canoe, all chanting accompanied by regular and graceful motions of the head and body and waving of the hands. Time was kept by a large drum, beaten by a drummer in the bow of the leading canoe. Naked slaves with their bodies blackened, each bearing a large copper shield, now rushed into the water and cast the shields into the deep in front of the canoes of the visitors. As these shields are made of native copper and inscribed with their crestal signs they are highly valued amongst the Indians, consequently this was one of the highest marks of welcome and honour. Not that the copper shields were lost to the owners, as they were recovered on the ebb of the tide (1915:105).

The observations of others repeat some of the foregoing, but occasionally add to the information. The Reverend Harrison who followed Collison at Masset (1883-1890) described Coppers as "flat sheets of metal about two feet by one and a half feet in size and a quarter of an inch in thickness on which a device was carved." He said they were not made by the Haidas but imported from Chilkat country north of Sitka. "Much attention was paid to the size and make of these sheets, which should be of uniform but not too great a thickness and ring a suitable note when struck with the hand" (1925:213-14). George M. Dawson's description, possibly cribbed by Harrison, adds only that the Coppers served as money (1880:135b). His description of Kwakiutl Coppers is more informative: "The most valued 'coppers' are very old and have been handed down for generations. These are known as *tla-kwa*. Smaller 'coppers' of modern manufacture are named *tla-tloh-sum*. A 'copper,' to be of value, should be of equal thickness throughout, except at the edges, where it should be thicker than elsewhere. When struck it should emit a dull sound and not ring (1887:14) [*tla-kwa* refers to gifts with supernatural association].

Pym Nevins Compton, a traveler to British Columbia in 1878, remarked on the Coppers and their "fictitious" value among the Tsimshian, Tlingit, and Kwakiutl. He describes Kwakiutl Coppers as varying in size from a foot to two feet in length, and half these dimensions in width and about one-eighth inches in thickness, but said that they varied more in value than in size. "But what constitutes a valuable 'copper' is extremely difficult to find out, though the old ones

are preferred to the new and those that are thin with a slightly raised rim are the most costly." He mentioned that Europeans noting the value of the Coppers had made some imitations to sell to the Indians but with very little success (1878:114-15).

Johan Adrians Jacobsen, who in 1881-83 collected objects for the Berlin Ethnological Museum, reported on Haida Coppers: "In the houses of the Haida I saw many examples of the unusual copper plates that for many years have played an important part in the economy of the Northwest Coast Indians . . . the traders, especially the Hudson's Bay Company began to imitate them and gave them to the Indians instead of money. In this way, they became widely distributed especially among the Haida and Tsimshian (1977:20).

James Deans described the manufacture of Coppers:

A piece of the virgin metal is first heated and then hammered out, between two stones, until it is reduced to a plate of the required thinness, when it is cut into the conventional hatchet-head form. The majority of these pieces are ornamented with a T-shaped groove, which is formed in this wise: some hard material (probably copper) made in the form of a T, is laid on a smooth stone. The sheet of copper is then heated, until soft enough to bend, and being laid over this T, is hammered until it takes the form of the T being raised on one side and grooved on the other . . . of later years these Indians have purchased rolled sheet copper in Victoria, B.C., which they cut without difficulty into pieces to suit themselves . . . Occasionally they resort to a species of counterfeiting by purchasing the rolled copper and beating it on rough stones and then painting it to resemble the ancient money (1885:9).

Niblack noted that each tribe has a "tradition which refers to the origin of the 'copper': the man in the moon, a chief beneath the sea" (1890:335).

On their expedition to Alaska in 1881, Aurel and Arthur Krause visited the Tlingit and wrote the following about Coppers: "Considered as especially costly pieces were the copper plates or shields of a special shape . . . These shields came by trade to the Haida who, according to Dawson, paid ten slaves for one of them. One which Dawson pictures is about two feet tall and is almost an exact duplicate of the one shown by Lisiansky" (1956:148-49).

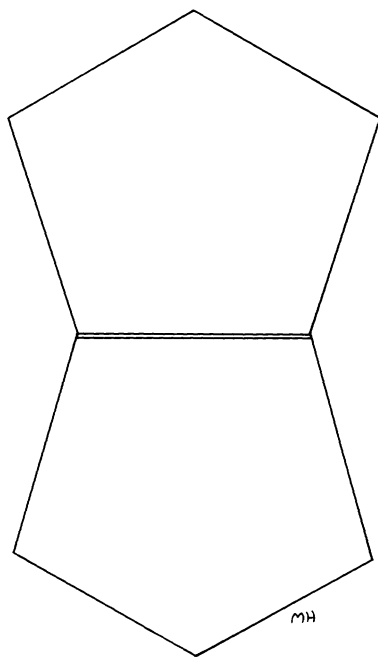
Swanton and Boas claimed that originally Coppers were made of native copper obtained from the Copper River and that they were exchanged at potlatches. Boas added that the Indians valued them the more frequently they were exchanged rather than for any intrinsic worth as money (Boas 1887:427).

In 1912 Newcombe recorded in his notebook information on this subject that he had obtained from Emmons:

Copper was found as nuggets in bed of Copper River and was in possession of Stick Indians, but the Laktono-ton (Dutkowiee) and Thluk-nar-hut-tee traded with the Eakh-kar qwan for copper and Tinnah (copper shields from small to

large size) which was traded with southern Tlingits, Haida, Tsimshians and others for slaves, canoes, carved boxes, bone dishes, spoons, abalone and dentalium shell, etc. The Tinnah were worked into shield shape by Interior Sticks. A piece from tip of finger to wrist in length was valued at one slave, and from finger to elbow in length was valued at two slaves, while the small pieces passed on as current money, four small pieces worth a [illegible] skin (Newcombe 1912).

The significance given to the native copper content of real Coppers as opposed to "spurious" Coppers, which begins with Lisiansky in 1805, seems only to intensify with the passage of time. It was still in the forefront when DeLaguna worked with the Yakutat. The Yakutat informants (who gave her information about sizes of Coppers), none of whom had seen Coppers except in museums, told her that the shape of Coppers differed; that in their northern area each half was a pentagon which was joined in the center (Fig. 19), but in the south the traditional design was followed. According to her informant Davidson, nuggets a cubic foot in size were reported to have been found in the Copper River: "All the 'coppers' twenty-six by fifteen inches and so much prized as heirlooms by the Indians as far south as Vancouver are hammered out of pure copper obtained from this river" (DeLaguna 1972:354).



19. Version (copy) of a Yakutat Tlingit Copper as described by DeLaguna's informants (1972:354)

Discussion

As far as can be determined, there are only five accounts of Coppers from the earliest European contact until 1865, more than a hundred years. Afterward, the writings of numbers of observers record Coppers in many varied situations. Beginning with Colnett, each commented on the Coppers they saw, sometimes repeating the observations of earlier investigators, but usually adding new information.

To summarize the salient points:

The first observers noted some of the issues that remain in question: the native versus non-native copper content (Lisiansky, Lord), the source of the metal (Dunn, Lisiansky), the value reckoned in other goods (Dunn, Lisiansky). All wrote of the use of Coppers by chiefs, and the value set on them by the natives. Most commented on the ceremonial links of Coppers and were quite specific in describing their size and general appearance. Beginning with Colnett's drawing, it is possible to see differences in the treatment of Coppers, but general uniformity in shape. The lineage transmittal of Coppers is mentioned by Dunn and implied in Vosnesensky's drawing. Lord notes the shamanic connections of Kwakiutl Coppers. However, there is no mention by these early observers of exchange of Coppers.

After 1870 more information was either available to observers, or Coppers increased in numbers and were seen in a greater variety of situations. It is true that the early explorers and traders often stayed offshore and had few opportunities to see a possibly secreted valuable Copper. Nevertheless, the later more detailed descriptions noting variation in size and use of Coppers cannot all be attributed to closer observation, but rather must reflect the actual situation. Even taking into consideration that the men who traveled to the Northwest Coast were widely differing individuals—some accomplished and competent observers and writers, others interested primarily in the profits of the fur trade or the mines—their records generally point to a change in the Coppers from a few venerated objects to more common articles with many additional functions.

Some of the observations after 1870, beginning with MacKenzie's long descriptive notes, refer to the use of Coppers in inter- and intra-group exchange, the distribution of pieces of Coppers, and the variation in size and use of Coppers. Seeing the value set on Coppers, the writers tried to discover the basis for it, several mentioning age, sound, size, thickness or thinness, and method of fabrication. MacKenzie wrote that the naming of Coppers endowed them with value; Boas noted the increase in value through exchange. Deans provided the most detailed description of the fabrication of Coppers.

The reports conflict somewhat about the source of the metal, although many agree that it came from the north, some citing the Copper and

Stikine Rivers. Emmons said that the Stick (Athapaskan) Indians made Coppers and traded them to the Tlingit and Haida. A few stressed that all Coppers were made of native copper; others provided evidence for the fabrication of some Coppers of manufactured metal. Constant references to Hudson's Bay Company Coppers or European copper sheet and spurious Coppers supply strong evidence that Coppers of such materials were a reality.⁵ The use of trade copper sheet for the fabrication of many Coppers, therefore, seems incontrovertible. Indeed, Deans wrote of the purchase of sheet copper by the Indians and their fabrication of counterfeit Coppers.

In view of the change from maritime trade to trading posts, and the probable change in the type of copper available, it is likely that the Hudson's Bay Company used surplus heavy copper sheet manufactured for boilers and sugar vats to its advantage in trade with the Northwest Coast Indians whose traditions led them to set a high value on copper (Fig. 20). The issue of native versus trade copper may have arisen or been reiterated as a means of distinguishing particularly important lineage related Coppers.

At contact, the thieving of copper objects and the Indian response to trade copper suggest that the difference between native and trade copper was not of great significance even among the northern Haida and Tlingit who were closer to abundant native copper sources. Moreover, it would have been difficult if not impossible for the Indians to distinguish objects made of native copper from those made of European trade copper without prior knowledge, since the outward characteristics of the worked materials are practically indistinguishable. However, the probably later, heavy Coppers are recognizably different. Coppers deemed "native" may have had supernatural connotations which could have been ascribed through ceremony, naming, fine craftsmanship, and other methods. Untreated Coppers remained "spurious." Coppers referred to as "costly" among the Tsimshian (Boas 1916) may have had a specific chiefly connection, while others traded for goods with which to potlatch, though still chiefly property, may have lacked such links.

By 1860 all the Northwest Coast peoples were under severe stress due to population depletion, dislocation, and loss of hunting property. Coppers could have filled a vacuum in many situations where animals, people, or property had previously served. A confluence of circumstances could have led to increased functions for Coppers: the reduction of the animal and human population; moving of people into reserves; ban on slavery; loss of hunting grounds; the greater ease of using ready-made materials; and, of course, the large supply of sheet copper

⁵A large, undecorated Copper (34 ½ in. long and about ¼ in. thick) of unknown provenance at the Centennial Museum, Vancouver (AA1951), is documented with the following note by Lipsett: "Hudson's Bay copy of Indian Copper."



20. Haida Copper. 31 in long. Made of sheet copper from a ship's boiler. Obtained from a Haida chief by George Heye 1899. (Pitt Rivers Museum XV 197 1954.8.2)

at hand. Coppers may have replaced slaves or artifacts in many situations, just as blankets replaced animal skins. Whether the impetus for greater use of Coppers is tied to a specific influx of heavy sheet copper around 1865 remains a question.

Whether Coppers were ever made of native copper as claimed or always of European copper is a further question. The first Copper seen and sketched by Colnett in 1787 (Fig. 15), nine years after Cook's voyage, was a fully developed Haida example and at least medium-sized. The Copper drawn by Lisiansky in 1805 (Fig. 16) appears to be equally accomplished in style and technique. Since these examples were apparently objects of significance, displaying complete aesthetic and technical realization, one is inclined to believe they represented a long tradition that existed before contact. Recurrent claims for Coppers made of native copper lend further credence to this position. Nevertheless, this evidence, although strongly indicative of the pre-contact existence

of Coppers, would be greatly enhanced by the discovery of a Copper made of native copper. Such a specimen would not by itself provide proof of pre-contact existence, but lack of native copper examples would constitute strong evidence for post-contact origin.

III. The Native Copper Question

NATIVE METAL-WORKING TECHNOLOGY

It is generally believed that the Indians of North America, including the peoples of the Northwest Coast, were able to produce copper artifacts by the processes of hammering, shaping, and annealing, but not by casting, molding, or other more advanced techniques which require the melting of copper (Schroeder and Ruhl 1968:162). They had no consistent means of increasing the heat of an open fire—which is not capable of producing a temperature of more than 700 degrees centigrade—to 1083 degrees centigrade, the temperature at which copper melts (Tylecote 1962:25). Certain exceptions exist among Hopewell (Cushing 1894:94) and Southwest artifacts due to probable transmission from Mexico (Cushing 1894:165), but other evidence of pre-contact smelting—the process of separating copper from ore—has not been discovered. Nevertheless the Indians developed their limited technology to its fullest and fabricated technically accomplished weapons, instruments, and ornamental pieces.

According to the current opinion of several investigators (but contradicted by others), the complex process of smelting was probably invented only once and subsequently transmitted from one center. It eventually reached the Western hemisphere in South America.¹ The metallurgy of North America, which remained isolated from this invention until very late, was essentially a modification of a stone-working technique. As Cushing demonstrated (1894), the technology developed by adapting techniques used in the creation of stone, bone, shell, and hide artifacts to the fabrication of copper objects. Copper was found on the surface or extracted by rudimentary mining techniques which consisted of gouging out chunks of metal, or breaking them out by heating the rock matrix and then throwing cold water on it. The copper nugget found or chunk extracted was then pounded with stone until it reached the desired shape and thickness with annealing (heating) to restore malleability as necessary. Weapons were worked by hammering and annealing, and then cold hammered to increase hardness. Ornaments were ground and polished with sand or sandstone; incising or grooving was accomplished with bone tools. Many objects were skeuomorphs, scarcely deviating from the forms of stone and bone instruments (Cushing 1894; Douglas 1936; Putnam 1894:126; Spier

¹In response to a question, this position was advanced briefly by Betty Meggers and Theodore A. Wertime at the Symposium on Technology and Culture, American Anthropological Association Meeting, Washington, December 1980. See Christopher B. Donnan 1973: "A Precolumbian Smelter from Northern Peru," *Archaeology* 26 (4): 289-297, on independent invention in the Western hemisphere. The development of metallurgy in North America was the same in either case.

1970:109). Indeed, natives in areas bordering the Arctic Sea applied the same technology to introduced European trade copper (Rickard 1939:28).

On the Northwest Coast the Indians made daggers, arrow points, and chisels, as well as remarkable ornaments like copper neck rings of heavy twisted rods. The rods were probably made from pieces cut from sheet which were rolled between stones and then stretched by hammering and annealing (Tylecote 1962:141). Krause recorded the working of copper, which according to Veniaminof, a woman among the Chilkat discovered. ". . . More probably the Chilkat obtained this art which . . . was kept secret in certain families, from the inhabitants of the Copper river, the Ahtena with whom they had contact through the Yakutat" (1956:148). Quoting Wrangell he added: "The Atna are related to Kolushans [Tlingit]. At that time there were about sixty families who had friendly relations with the surrounding peoples. They knew how to make axes, knives, breast plates and other articles of the native copper in their territory . . ." (Krause 1956:219). Krause wrote: "We have only meager information about the way these copper articles [daggers] were made. Ismailof said that the inhabitants of Yakutat Bay made their daggers [whether of iron or copper is not stated] on a stone anvil" (Krause 1956:148). Erman held that "the Ahtena, who found blocks and lumps of native copper in the Copper river, worked them without smelting through mechanical means" (Krause 1956:149).

Newcombe learned from Dick Satin that: "Copper (*eakh*) obtained by Thlingit. The copper was obtained by the people living far up the Alschich river they were Stick Indians, known as China-ko-qwan who travelled by foot to Copper river traded for copper and brought it down to Dry Bay 'kehl-kar' and the Thlingit came up the coast and traded for this copper and took it south. Tinnah ('copper') made by Copper River People. Could not temper copper" (1912).

Harrington obtained the following information from Jack Ellis, which is quoted by DeLaguna: "The southern Indians did not have copper . . . When they came to the Cordova region they bought it, they did not dig it out. Just a little flat piece of copper six inches long and wide was worth a slave. Some seven such pieces laid out from hand to shoulder was worth seven slaves" (1972:254). The nineteenth century observers admired particularly the technical competence of the daggers, but Niblack also noted that Haida masks were inlaid with abalone and copper, particularly the lips, teeth, nostrils, and eyelids (1890:282-83), and stated that copper was beaten into the required shapes (1890:317). Coppers could have been produced from a native copper nugget by hammering it and annealing when necessary until it reached the desired size and shape. Assuming that native copper examples existed, they would probably rarely have exceeded eighteen inches in length, the size to which an average-size nugget could be extended (C.S. Smith, pers. comm.). They also could have been made of the quantities of European sheet copper traded on the Northwest Coast.

Fabrication of Coppers

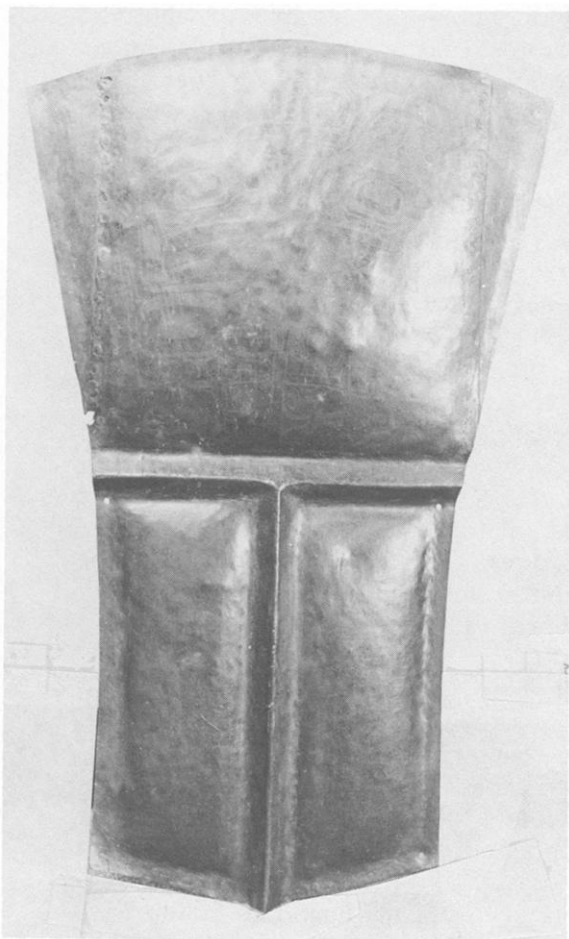
The European copper sheet of the late eighteenth century was thin, malleable, relatively pure, especially if it had been made at Portsmouth for the British Royal Navy, and, as noted, very similar in appearance and texture to native copper. It was not difficult for the Indians to make a Copper of European copper sheet. The sheets used for sheathing could be cut into shape with a chisel, the Northwest Coast woodworking tool, annealed, and hammered in a wooden mold to form the curve or bulge of the upper part, or formed over a wood or stone shape. The T was shaped with a copper or wooden stick or wedge. The most difficult part was the area near the intersection of the T, which required annealing to relieve the stress where the vertical and horizontal members join.² Some examples reveal that the problem was not well resolved by less skillful artisans. Given a sheet of copper with dimensions of forty-eight by fourteen or twenty inches, the easiest method would have been to use the width for the widest dimension at the top and cut the rest to conform proportionately. A larger Copper could have been made of two sheets riveted at the center T, or triangular sections could have been added to extend the width at the top (Fig. 21). The technique of riveting, which is within the hammering and annealing technology, was apparently known to the Tlingit and others before contact. Evidence of their origin as ships' sheathing can be seen on Coppers which have holes plugged with rivets (Fig. 22) or holes along their edges (Fig. 23).

Metallurgical and Metallographic Analyses³

Two characteristics of native copper are salient for diagnosing the origin of copper in artifacts: purity and malleability. Although there are

²Fabrication information supplied by Gerry Marks; see Chapter I, note 3.

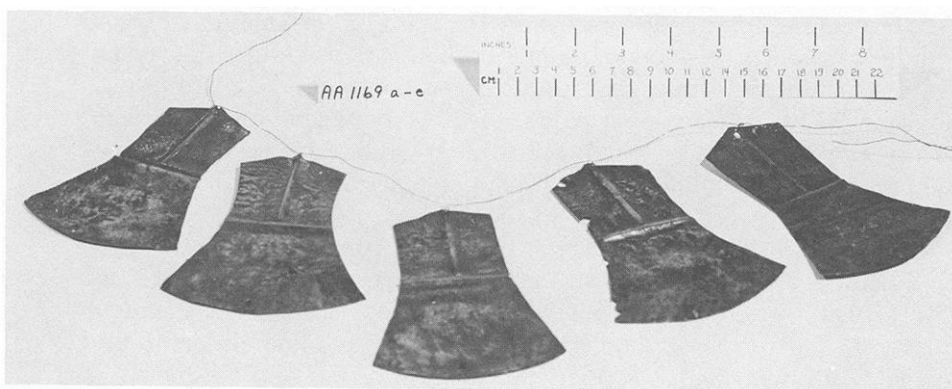
³The metallurgical aspects of the research were under the guidance of Heather Lechtman, Associate Professor, Department of Humanities, MIT. She also prepared the sections for metallographic analysis, performed the second analysis, and took the microphotographs. Cyril Stanley Smith, Professor Emeritus, MIT, also advised on the project and performed the radiographic and preliminary metallographic analyses. I am particularly indebted to him for recommending radiography and for informing me of Percy's collection of copper sheathing in the Science Museum, London. Others who made specific contributions are: Dr. Donald Baird, Museum of Natural History, Princeton University, for loan of Princeton Coppers; Falconbridge Mines, Utah Mines, samples of native copper; F. Greenaway, Keeper of Chemistry, and Susan Cackett, Science Museum London, photograph and sample of *Argonaut* sheathing; Dr. Victor Hanson and Dr. Janice Carlson, The Winterthur Museum, Analytical Laboratory, x-ray fluorescence; Richard Inglis, Res. Asst. Archeology, and Ted Brasser, Plains Ethnologist, National Museum of Man, Ottawa, permission to sample and analyze Canadian Coppers; Marilyn Laver, Conservations Scientist, Canadian Conservation Institute, sampling of artifacts; Dr. Allen Parkes, MIT Geophysical Laboratory, microprobe analysis; Dr. U. Peterson, Professor of Geology, Harvard University, sources of native copper; Dr. Edwin Sayre, Museum of Fine Arts, Boston, x-ray fluorescence analysis; Emil Veakis, Department of Chemistry, Brookhaven National Laboratory, neutron activation analysis; Dr. Stephen Williams, former director, Peabody Museum, Harvard University, permission to sample and analyze Peabody Museum Coppers.



21. Copper of unknown provenance. 95.5 x 55.6 cm. This Copper was found buried on a small island northwest of Japonski Island, 1940. (Alaska Historical Library & Museum 11-B-1112)



22. Haida Copper about 10 in long. Collected at Cumsewa, Queen Charlotte Islands, by C. F. Newcombe, 1895-1901. (NMM-VII-B-377). (Note rivet plugging hole lower right)



23. Five small Coppers of unknown provenance. 5 x 3 1/2 in. Nailing holes along edges. (Centennial Museum AA 1169 a-e)

exceptions native copper is typically pure. For example, metallurgical analysis of seven North American native copper samples from various locations showed them to have a copper content of 99.7627 percent or above, and although not completely recorded, with trace elements consisting predominately of silver and iron (Voce 1948:20). Another analysis comparing Lake Superior native copper with European copper manufactured from ores showed the first to have a copper content of 99.901 percent, the second 97.935 percent (Phillips 1925:287).

Native copper is also sufficiently malleable to be shaped by hammering. Extensive cold working normally makes copper brittle. To restore its malleability, it must be annealed (heated to some temperature below the melting point). Small very pure pieces have been extensively hammered without annealing and shaped into coils or small beads (C. S. Smith 1965:238-39). Further experimentation has demonstrated the extent of native copper malleability: “. . . several pieces of unannealed float copper were hammered into thin sheets One can infer from the high malleability of these pieces that a careful artisan could without annealing, shape artifacts similar to some of those made by prehistoric man. Annealing would be necessary for *easy* working into a complex shape, but it is not required simply to avoid cracking (Schroeder and Ruhl 1968:157).

In studies that attempt to determine whether North American Indian copper artifacts are fabricated of native or European copper the following differences in technology are taken into consideration: 1) European copper is generally less pure; that is, a greater number and larger amounts of trace elements are found to be present when analyses of European copper and native copper are compared. In addition, certain specific elements such as tin occur variably with native copper, but were frequently intentionally alloyed in standardized quantities in European processing—a fact accessible by analysis. 2) The melting of copper at 1,083 degrees centigrade—necessary for the type of smelting process under consideration—and subsequent solidification changes the crystalline structure of copper and under most conditions also introduces oxygen which forms copper oxide, easily recognizable under a microscope, a point to be returned to below. 3) Other advanced techniques employed in the manufacture of copper objects such as hot or cold rolling, which were unknown to the Indians of North America, also distinguish European from pre-contact native copper artifacts.

Chemical analyses of artifacts determine the composition of the metal by focusing on the relative amounts of copper and trace elements present. Traces of varying quantities of certain minerals are found geologically with native copper: tin, arsenic, silver, and antimony, in particular, but purity of copper or large amounts of copper in proportion to trace elements is assumed to be indicative but not in itself diagnostic of native copper.

Smelted copper usually includes various amounts of other elements

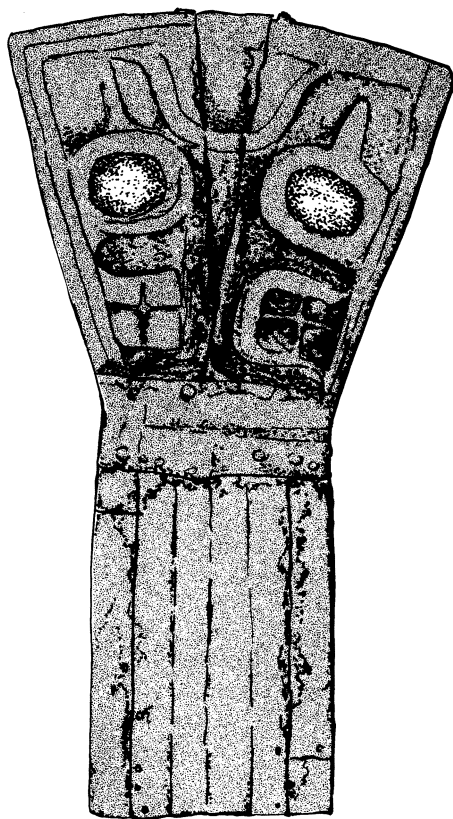
as impurities. Moreover, certain elements are intentionally alloyed with copper either to make it cast more readily and harder (as with tin bronzes or arsenical coppers) or more malleable and relatively cheaper (as with brasses containing up to 40 percent zinc). Analysis of smelted copper will show the presence of trace element impurities and if intentionally alloyed, some regularity in the amount of alloying element. Such patterns can occasionally lead to identification of particular objects with specific smelters (Friedman 1966:1504,1506; for more complete information on the problem of distinguishing native copper from European copper see also Bastian 1961; Coghlan 1962; Drier 1961; Root 1961; and Schroeder and Ruhl 1968).

With respect to Coppers, it is clear that the metal of some can easily be identified as European smelted copper either because of its impurity or because of evidence of intentional alloyings, such as zinc in the case of Muntz metal, which is made of 60 percent copper and 40 percent zinc. In these instances, metallurgical analysis is sufficient to verify the European source of the copper. Indeed, copper less than 99 percent pure is strongly indicative of European origin. Yet, identification of copper above 99 percent in purity is in itself not sufficient proof of native origin; metallographic analysis is also required.

Examples Analyzed

Examples to be analyzed were selected on the basis of their suitability for testing and also their availability. Coppers differ within the five cultures in quality of workmanship, in size, and of importance here, in texture, weight, and method of creation: that is, by their weight, thickness, and type of manufacture, many Coppers appear unlikely to have been made of native copper. For example, the even thickness and texture of many large heavy Coppers appears to have been achieved by rolling. Others that show physical evidence of previous use as copper sheathing such as nail holes, or multi-layers characteristic of boot-coppering also preclude native copper as the material of fabrication.⁴ The first examples to be analyzed consisted of one large Kwakiutl Copper (Fig. 24: PM 65473), one piece of a Tsimshian heavy Copper (Fig. 25: PM 85848), two ornamental Kwakiutl coppers (Fig. 26a: PM 50471 and b: PM 87180), one small, probably Tlingit Copper (Fig. 27: PM 98044), a medium Tlingit Copper described as made of a Russian pot (Fig. 28: PU 5147), and two Tlingit ornamental Coppers (Fig. 29: PU 5265 a and b). Subsequently added were five samples of native copper of known provenance in British Columbia and Michigan, a large Tlingit Copper (Fig. 30: PM 34571), three Haida Coppers (Fig. 22: NMM VII-B-377; Fig. 37: NMM VII-B-378; Fig. 31: NMM VII-V-964) of known provenance and early collection date, two other Coppers of unknown provenance, which

⁴A broken Copper (British Columbia Provincial Museum 9935) of unknown provenance is made of three or more layers of sheet copper and also has many holes.



24. Kwakiutl Copper (drawing) c. 22 x 13 in. 9 to 10 pieces. (PM 05/7-10/65473)

superficially appeared native-like (Fig. 38: NM VII-X-597; Fig. 40: NMM-X-1082), and two pieces of copper sheathing, one from Salem (Fig. 32: PM Salem) and the second taken from H.M.S. *Argonaut* (Fig. 33: SM 1026). The last was described as "put on 1790. Taken off 1830," and further:

In this specimen are seen straight broad lines drawn both ways from nail-hole to nail-hole, and there is also the arrow-mark preserved in the same way. It is suggested that before it was customary to make the position of the nail-holes, lines were drawn with a steel tool called a scribe, to fix their position, and along these lines so marked the copper has been indurated, and thus is better preserved. In proof of this it is noted that copper cast under pressure has its strength increased 40 percent . . . (Blake 1892:132).

Although *Argonaut* was not an unusual name for a ship, because of the dates this may have been Colnett's ship of that name. Meares described the *Argonaut* as copper-sheathed in 1790 (see above). The copper sheathing was put on after Colnett's first voyage when he saw the Haida Copper, but it probably is similar to the sheet copper he and



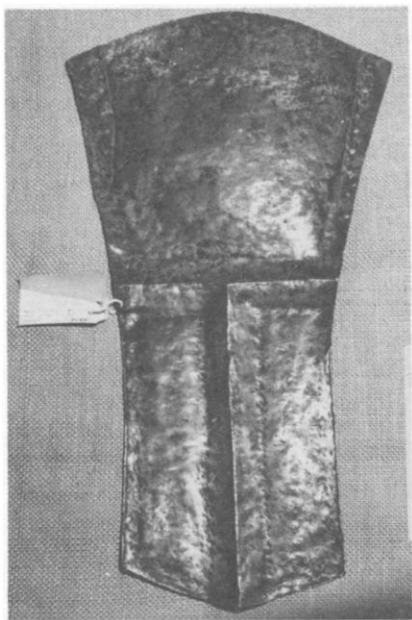
25. Tsimshian Copper piece. 5 x 3 1/2 in. Collected by G. T. Emmons at village of Chimmusqua near Kesqagass and the mouth of the Babieu River (PM 85848)



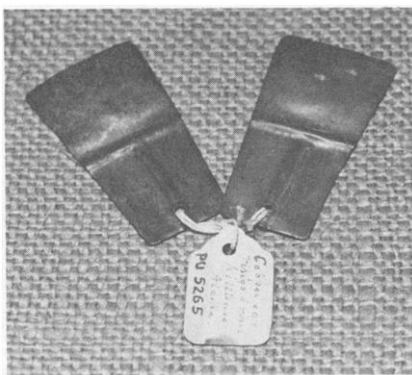
27. Tlingit Copper, 8 x 4 1/2 in. (PM 98044)



26. Kwakiutl Coppers: (a) About 2 in long. Collected by C. F. Newcombe, 1917 at Kingcome Inlet (PM 50471); (b) About 2 1/4 in long. Collected from Nimkish, Alert Bay (PM 87180)



28. Tlingit Copper, about 18 x 12 in. Collected by Sheldon Jackson who claimed it was made from a Russian pot (PU 5147)



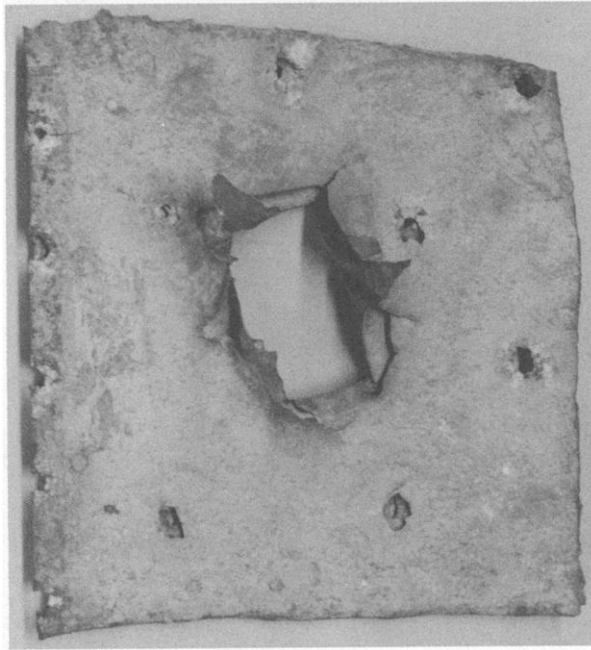
29. Tlingit Coppers, about 2 in long. Collected by G. T. Emmons from the Angood tribe at Killisnoo, 1901. (PU 5265 a and b)



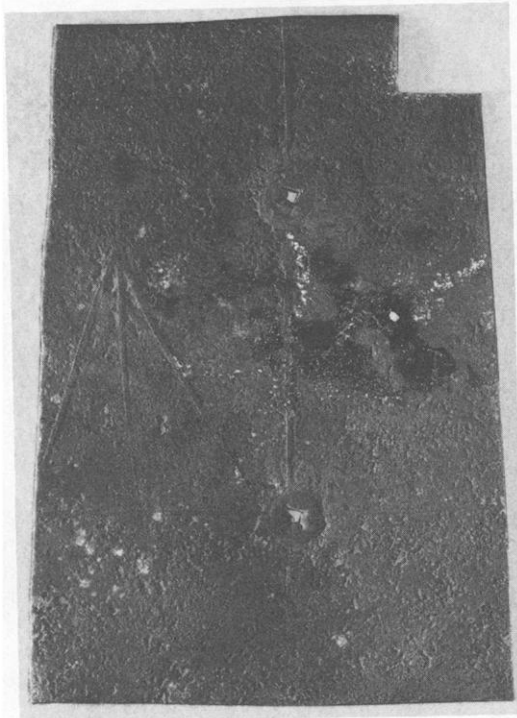
30. Tlingit Copper, 30 x 20 in. (PM 34571)



31. Haida Copper, 22 x 15.2 cm. Collected by MacKenzie 1884 (NMM-B-964-1337)



32. Piece of copper sheathing (Peabody Museum, Salem). The three layers evidence boot coppering. The hole in the center was caused by lightning according to museum records, but C. S. Smith believes rather that it was made by a spike or pick.



33. Copper sheathing from H.M.S. *Argonaut*. Put on 1790, taken off 1830 (London, Science Museum: 1026). (Piece removed 1976 for sampling)

others traded at that time. As indicated above, the sheathing of Royal Navy ships changed very little until 1832.

It was initially assumed that chemical analysis would be sufficient to distinguish examples made of native copper, but the first tests by X-ray fluorescence proved to be insufficiently diagnostic. Subsequently, neutron activation analysis conducted at Brookhaven National Laboratory indicated that all the five samples taken from Coppers were of smelted copper with the possible exception of PM 65473-11 which remained questionable (sampling charts, Figs. 34-40). Metallographic analysis was hence called for to resolve the remaining doubts about these pieces and PM 87180 which had not been sampled or included in the neutron activation analysis. Before resorting to these procedures, radiographs were made of a few Coppers to learn if they were made of manufactured rolled sheet as they appeared to be.

Radiography

Radiographs can reveal patterns of local variations in thickness that arise during fabrication procedures such as hammering and rolling. Their use was based on the assumption that a general uniformity of thickness and directional streaks formed by rolled defects could be indicative of hot rolling and thus manifest a European copper source. Radiographs are not damaging so this methodology was believed suitable for analyzing large specimens considered works of art such as PM 34571 (Fig. 30)

X-RAY FLUORESCENCE ANALYSIS, THE WINTERTHUR MUSEUM

<i>Specimen</i>	<i>Cu</i>	<i>Mn</i>	<i>Fe</i>	<i>Ni</i>	<i>Zn</i>	<i>As</i>	<i>Pb</i>	<i>Au</i>	<i>Bi</i>	<i>Ag</i>	<i>In</i>	<i>Sn</i>	<i>Sb</i>
PU 5147-a	99.62	—	.15	.04	—	.05	.04	—	—	.10	—	—	—
PU 5147-b	81.68	—	.19	.10	16.66	.04	.67	—	—	.09	—	.57	—
PU 5147-c	99.53	—	.25	—	—	.05	.06	—	—	.10	—	—	—
PU 5265-a	99.62	—	—	.03	.02	.01	.25	—	—	.05	—	—	.02
PU 5265-b	99.73	—	—	—	—	.01	.18	—	—	.06	—	—	.02
PM 50471	98.91	—	—	—	—	.36	.67	—	—	.03	—	—	.02
PM 87180	99.64	—	—	.04	.02	—	.21	—	—	.09	—	—	—
PN 85848-a	98.87	—	.65	.11	—	—	.28	—	—	.03	—	—	.06
PM 85848-b	98.72	—	.82	.16	—	—	.22	—	—	.02	—	—	.06
PM 98044	99.71	—	—	—	.10	—	.20	—	—	—	—	—	—
PM 65473-a	99.85	—	—	.09	—	—	.03	—	—	.03	—	—	—
PM 65473-b	99.78	—	—	—	—	.11	.05	—	—	.05	—	—	—
PM 65473-c	99.67	—	—	.05	—	.14	.07	—	—	.06	—	—	.01
PM 65473-d	99.72	—	.20	—	—	—	.05	—	—	.03	—	—	—
PM 65473-e	99.42	—	.40	.01	—	.07	.01	—	—	.08	—	—	—
PM 65473-f	99.84	—	—	—	—	.03	.05	—	—	.07	—	—	—
PM 65473-g	99.73	—	—	—	—	—	.21	—	—	.02	—	—	.03
PM 65473-h	99.81	—	—	—	—	.06	.03	—	—	.10	—	—	—
PM 65473-i	99.81	—	—	—	—	.05	.04	—	—	.10	—	—	—
PM 65473-j	99.84	—	—	.06	—	.03	—	—	—	.08	—	—	—
PM 65473-k	99.39	—	.49	—	.01	—	.08	—	—	.02	—	—	—

X-RAY FLUORESCENCE, MFA
BOSTON ARSENIC COPPER
RATIO

<i>Specimen</i>	<i>As/Cu</i>
PU 5147-1	.39%
PU 5147-2	.39%
PM 85948	1.96%
PM 65473-4	.49%
PM 65473-5	.25%
PM 65473-6	.26%
PM 65473-7	.33%
PM 65473-8	.34%
PM 65473-9	.35%
PM 65473-10	.29%
PM 65473-11	.016%
PM 65473-12	.026%
PM 65473-13	.35%
PM 98044-a*	.19%
PM 98044-b	.03%
Sustet, B.C.	.068%
Omineca, B.C.†	1.77%
Michigan	< .01%
B.C.	< .01%
PM 87180	.042%
PM 50471	.12%
PU 5265-a	.14%
PU 5265-b	.12%

*a = mounted on glass

b = mounted on polyethylene
and vaseline

† = same sample, a drilling.

The first showed traces of gold;
the second, using same polyeth-
ylene mounting, no gold.

which are made of thick sheet with a manufactured appearance. Other Coppers were radiographed, but useful information was obtained from only three.

Radiography, though not always useful, proved especially valuable in the analysis of PM 34571 (Fig. 30). The comments of Cyril S. Smith on the specimens follow:

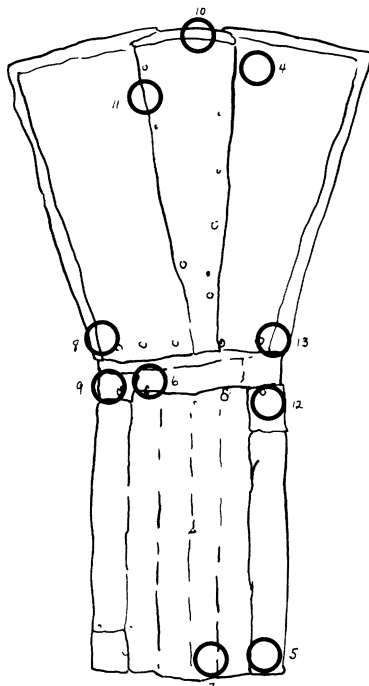
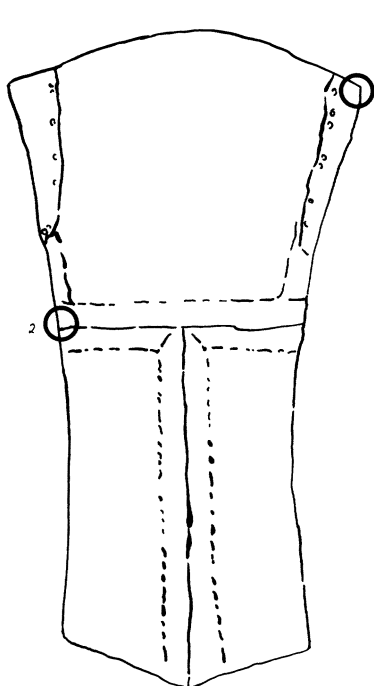
PM 34571 Uniform surface. On right verso some scaly appearance in strong support of hot rolled copper, in addition to uniformity of radiography. A large piece of rolled copper which was hammered to make the T and the convex area of the upper portion. The marks of the hammer, a rather narrow type, are quite clear to the naked eye, as well as showing up on the radiography. The edge was cut with a chisel and finished by upsetting, by hammering edgewise while the sheet was tightly clamped. The edge varies.

The Tlingit small Copper (Fig. 27: PM 98044) was too small to determine whether it was rolled. PU 5147 (Fig. 28), which was made of a

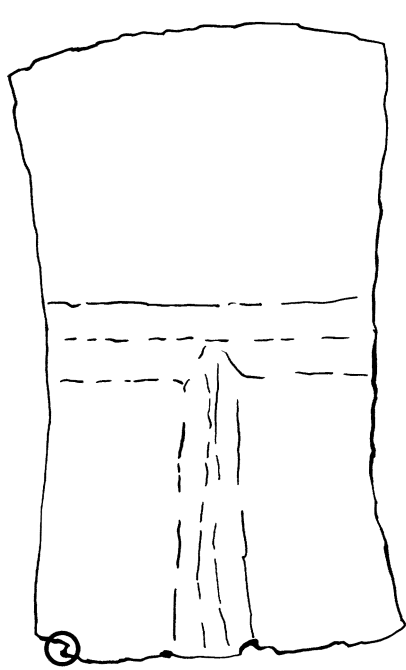
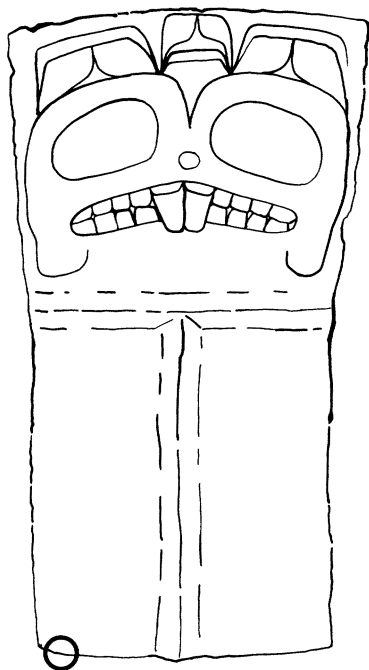
NEUTRON ACTIVATION ANALYSIS
Brookhaven National Laboratory

Specimen	Cu	Au	Sb	As	Hg	Ag	Zn	Cr	Fe	Co	Sc	Ce	Th	La
PU 5147-1	988219.	8.1		4420.	30.6	5340.	1980.0	2.06		.348	.060			
PU 5147-2	989285.	13.4		4840.	35.9	5790.	35.0			.515	.078	.88		
PM 85848	997009.	79.8		1270.	19.0	1620.				.754	.029	1.91		
PM 65473-4	988152.	17.7		7790.	33.5	3960.	40.6			.166	.050	6.12		
PM 65473-5	988781.	73.6		5010.	36.9	6010.	83.3	4.19		.182	.068			
PM 65473-6	994721.	122.0		3000.	32.8	2090.	32.4			.081	.035	2.07		.624
PM 65473-7	989358.	14.4		6170.	17.5	4410.	29.1			.212	.064	1.01		
PM 65473-8	988735.	10.5		5150.	37.6	6030.	34.0	2.67		.148	.088			
PM 65473-9	990095.	8.1		4420.	32.0	5370.	69.3	5.48		.176	.071	2.26		
PM 65473-10	991326.	4.0		4420.	19.6	4190.	25.9	3.67		.558	.052	10.7		
PM 65473-11	998985.	14.8		473.	31.8	1080.	69.7	3.28	34.4	87.900	.013	6.5	.231	
PM 65473-12	997354.	7.4		682.	66.9	1850.	50.3	2.46		6.340	.020	1.0		
PM 65473-13	989293.	7.8		4850.	34.0	1850.				.599	.073	4.17		
Omineca	997772.	7.8		881.	48.4	1220.		.92	69.0	.199	.029	.75		
Michigan	998874.	2.4	1.79		10.2	1020.	38.4	1.35	50.8	.368	.008	.43		

From SMPCALC output. All data in parts per million rounded to four figures or less except for copper. Copper arrived at by difference and may include large amounts of oxygen and other unreported elements.

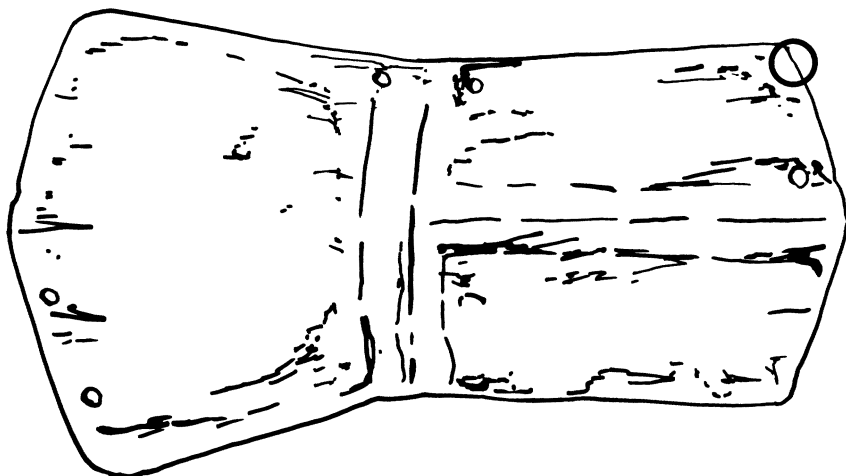


34. Sampling chart PU 5147-1 and -2 (Fig. 28) 35. Sampling chart PM 65473-1 to -13 (Fig. 24)

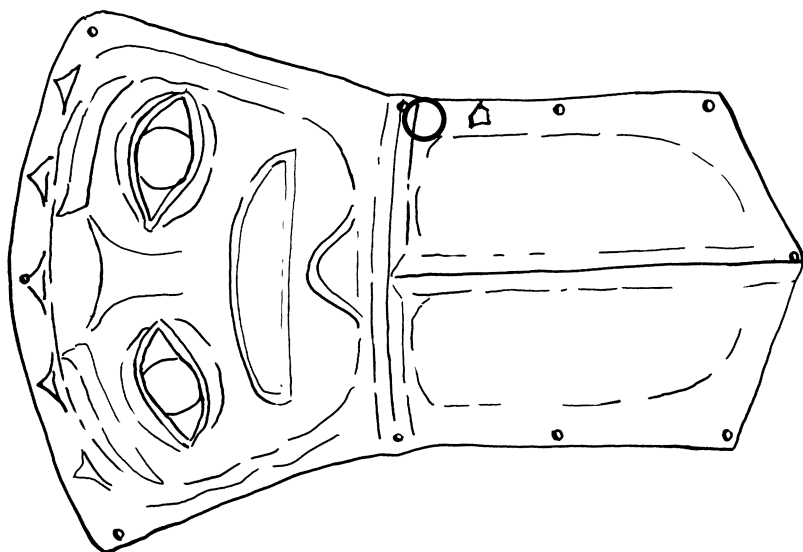


36. Sampling chart of NMM-B-377 (Fig. 22)

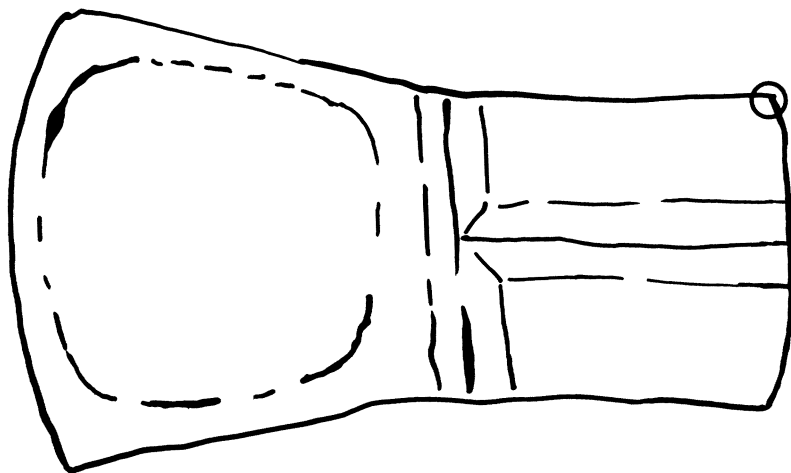
37. Sampling chart of NMM-B-378



40. Sampling chart of NMM-X-1082



39. Sampling chart of NMM-B-964 (Fig. 31)



38. Sampling chart of NMM-X-597

Russian pot according to its collector, Sheldon Jackson, was hammered rather than rolled, a technique practiced in the manufacture of Russian and Swedish sheet copper at the time of the early fur trade period (Great Britain 1799:71).⁵

Radiography proved to be the simplest, least destructive method of analyzing large Coppers made of heavy sheet, but less useful with pieces made of thinner metal where the evidence of rolling was either less apparent or obscured.

Metallographic Analysis

The melting and smelting of copper cause permanent changes in the structure of the metal which are discernible by micro-examination. Bastian clarifies the basis for distinguishing native from European copper:

When copper is melted in an oxidizing atmosphere, spherical inclusions of copper sulphide, copper oxide or other impurities may be introduced into the copper and they arrange themselves along the grain boundaries . . . When the copper that has been melted is worked, the inclusions are deformed in the same direction as the crystals . . . Remelting restores the inclusions and grains to their equidimensional shapes. Annealing of copper that has been melted usually restores only the grains to an equidimensional form, while the inclusions remain deformed . . .

Bastian records observations on this point by several investigators including Voce: "The presence of cuprous oxide proves conclusively that the copper was melted without much protection from the air; it could not possibly have been wrought from a piece of unmelted native copper" (Voce 1961:70). Bastian concludes: "The absence of oxide inclusions is not an entirely reliable guide in distinguishing native copper from ore-derived copper . . . However, if all the chemical, metallographic and archaeological evidence is brought to bear on the problem, some fairly confident statements can probably be made about many specimens . . ." (1961:170-74).

Copper oxide inclusions become fewer and larger and are more visible when copper is annealed at high temperatures, but are removed only if the annealing is done in a reducing atmosphere. Nineteenth century commercial copper would normally have oxygen. Therefore, based on the assumption that the Northwest Coast Indians were unable to melt copper or subject it to high temperatures, the presence of large oxide

⁵Notes on radiography by Cyril S. Smith: *PU 5147*—No directional scaling. Edge hammered with rough hammer like a stone. No structural reason for patches on the back. Two side pieces for repair or addition; *PM 98044*—Chisel cut from the back around edges and edge hammered. Design hammered in with tracer tool. Nostril done with center punch hole.

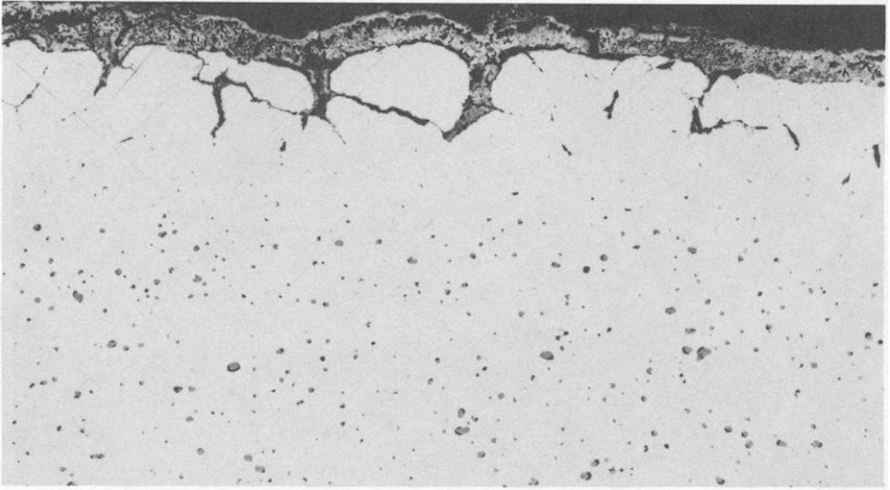
Microprobe Analysis
MIT Geophysical Laboratory

Specimen	Cu	Zn	As	Pb	Ag	Sn	Sb	Total
PM 65473-6	96.53	.00	.27	.38	.02	.04	.02	97.25
PM 65473-7	97.47	.14	1.24	.56	.04	.07	.07	99.58
PM 65473-7*	90.35	.00	.35	.47	.07	.13	.05	94.43
PM 65473-12	99.46	.00	.28	.41	.06	.10	.11	100.41
PM 87180	99.60	.00	.04	.49	.14	.04	.07	100.38
NM VII-B-377	99.15	.00	.12	.42	.04	.11	.09	99.93
NM VII-B-378	99.38	.00	.27	.37	.05	.05	.09	100.21
NM VII-X-597	99.38	.00	.18	.46	.20	.05	.11	100.37
NM VII-B-964	99.72	.00	.16	.32	.08	.11	.11	100.49
NM VII-X-1082	99.69	.00	.16	.41	.07	.07	.05	100.45
SM 1026	99.44	.04	.43	.35	.20	.05	.09	100.59
PM Salem	62.48	37.01	.27	.42	.07	.12	.06	100.43

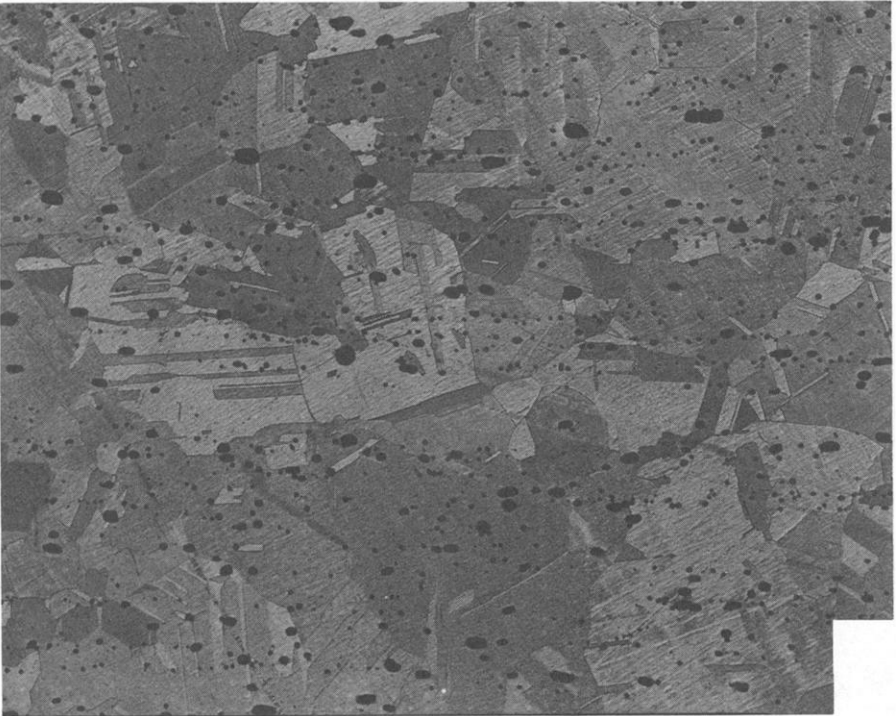
*surface alloy

Geophysical Lab Probe System; 2/25/75:2 MIT Version with Magic Corrections

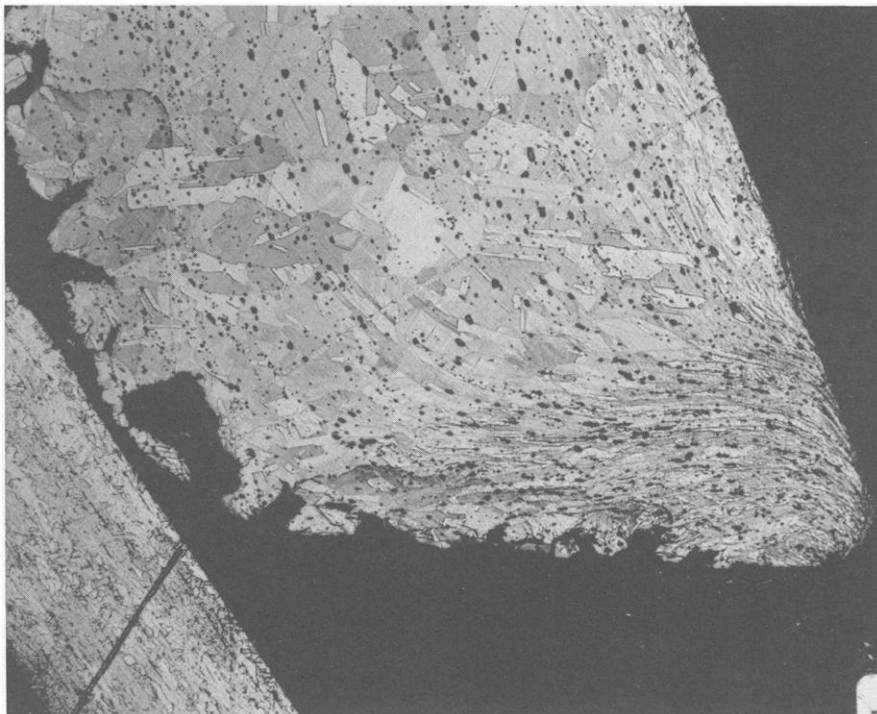
41. Microprobe Analysis. (Note relative consistency except for PM Salem)



42. PM 65473-7 (11), x 100. Shows alloy. Oxide present. Surface coated with molten alloy that has penetrated between the grains. Large grain surface. No evidence of extensive cold work after last heating to moderate high temperature

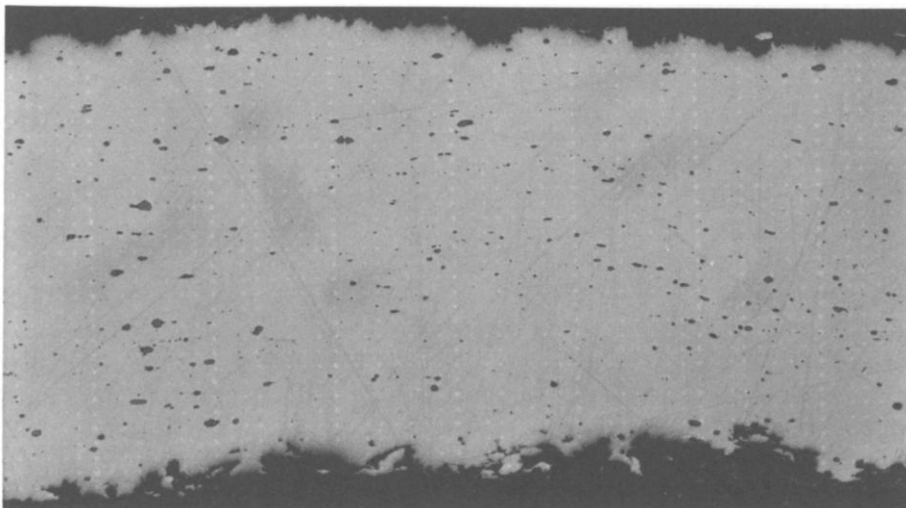


43. PM 65473-12 (5), x 200. Etched section. Even distribution of oxide inclusions; completely recrystallized, equiaxed grains with annealing twins



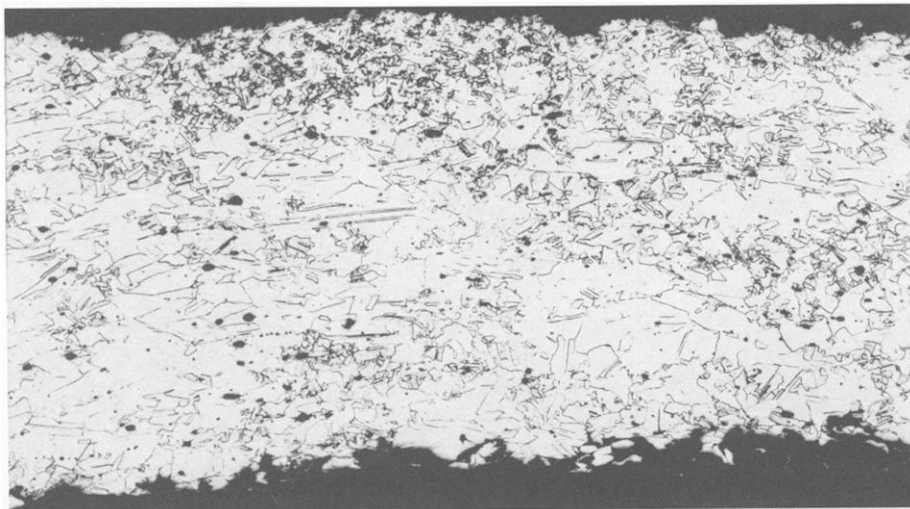
44. PM 65473-12 (8), $\times 100$. Etched section. At the extreme end, where the metal is severely worked and was plastically deformed subsequent to the final anneal, grains severely deformed from cold working in shaping and forming the ends and surface

(C.S.S. comments: Deformation came about by cutting after last anneal or after hot rolling that finished at reasonably high temperatures so that the metal was fully recrystallized. Probably every sample had been hot rolled and never cold rolled and annealed to soften it. Commercial copper for roofing, ship cladding, and anything that does not need fine finish or very accurate dimensions is usually hot rolled and shipped directly with no further treatment. It would vary quite a lot in grain size.)



45. PM 87180 (3), $\times 100$. Polished section. Considerable number of copper oxide inclusions strung out in the direction of working the metal; oxide inclusions are fairly round, indicating not much thinning and elongation of the metal has occurred

(C.S.S. comments: Oxide distribution looks like metal that has been fairly well worked by hot rolling and/or annealing)

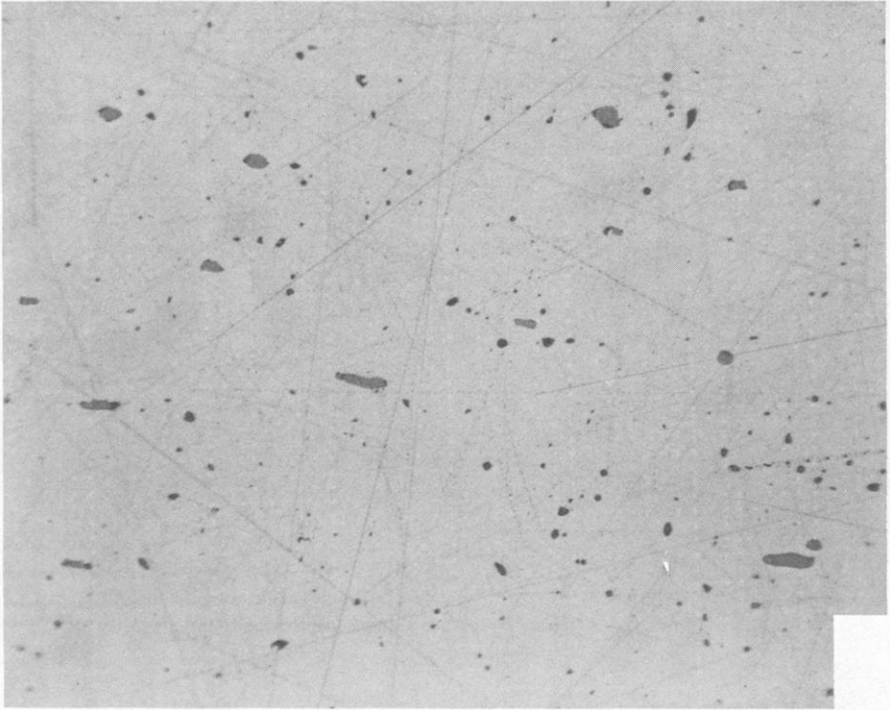


46. PM 87180 (6), x 100. Etched section. Fully recrystallized grains with annealing twins; a few bent twins indicating some working following final anneal; small grains interspersed with much larger grains, but small grains at surface indicate more working at surface than at interior of metal prior to final anneal

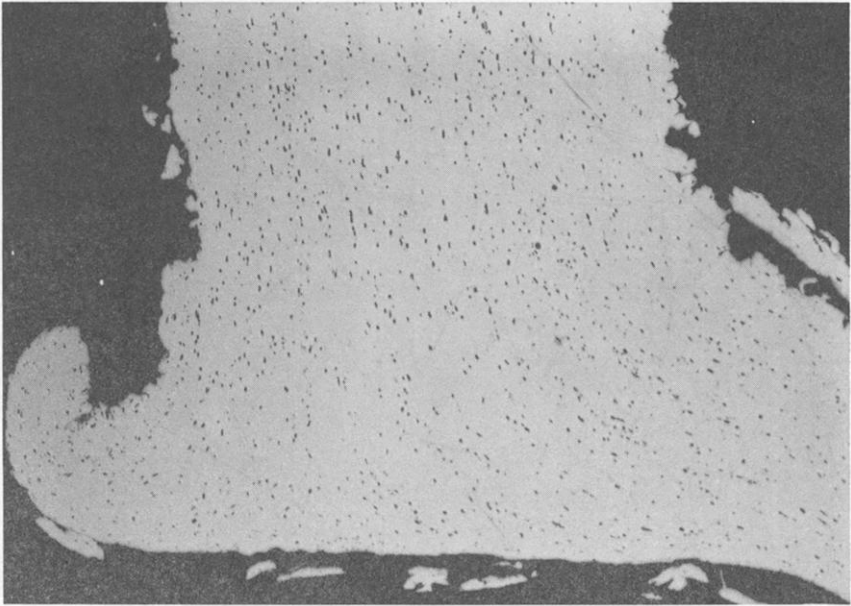
(C.S.S. comments: Uneven grain size originated in hot rolling at a rather low temperature, or if annealed at a temperature too low for full recrystallization rather than surface working.)



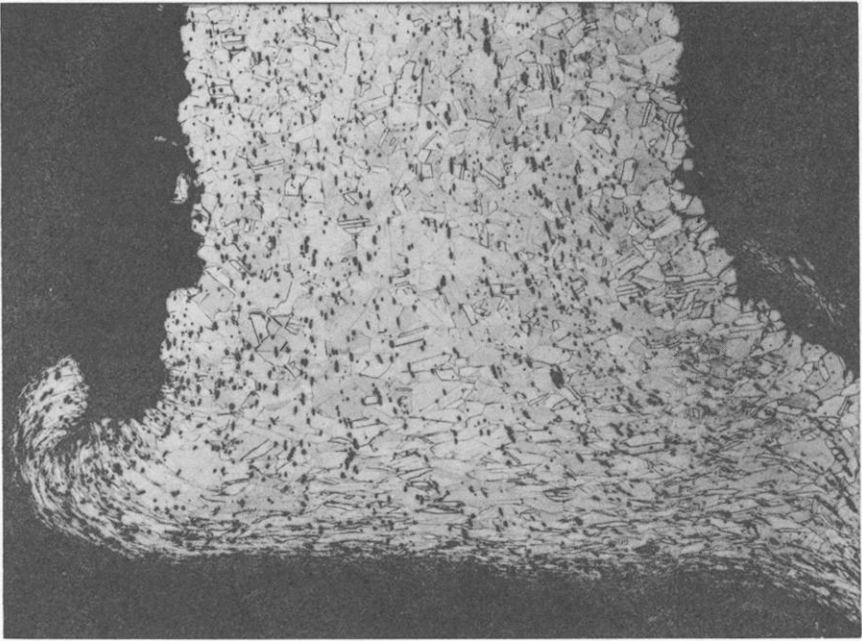
47. NMM VII-B-377 (5), x 200. Etched section. Fully recrystallized grains with annealing twins



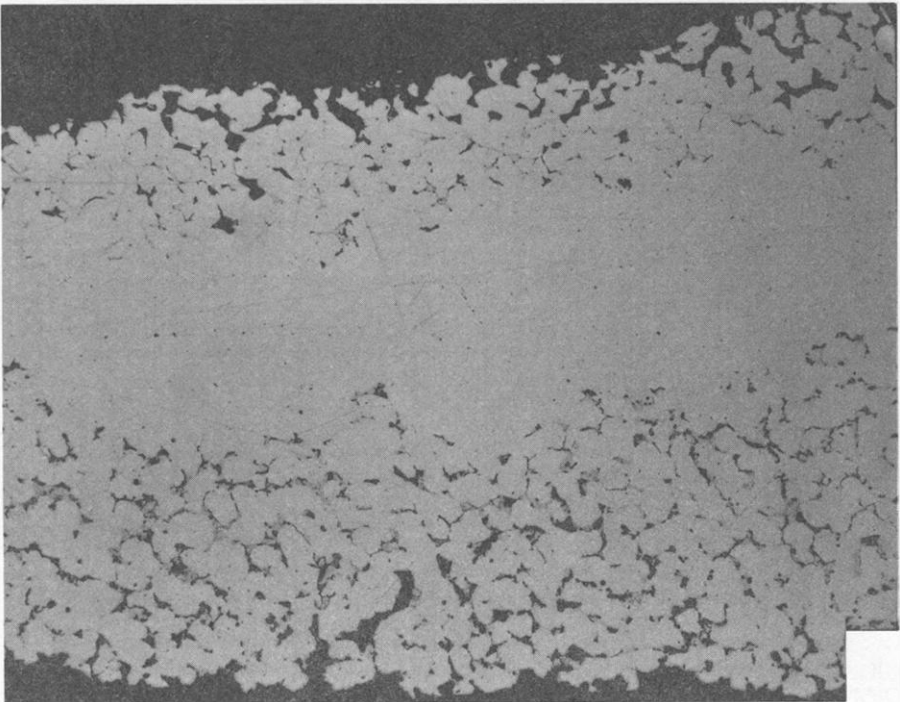
48. NMM VII-B-377 (6), $\times 500$. Polished section. Numerous oxide particles, very fine in size



49. NMM VII-B-964 (4), $\times 100$. Polished section. Numerous oxide inclusions; the end of sample is "upset" by mild hammering; note plastic deformation of the end and how copper oxide particles follow the flow of the metal



50. NMM VII-B-964 (7), $\times 100$. Etched section. Small equiaxed grains with annealing twins; metal appears as if it might have been produced in a rolling mill; note evenness of thickness and uniformity of grain size; grains at the upset end are elongated from plastic deformation; this deformation (working) occurred after the last anneal



51. PM Salem (3), $\times 100$. Polished section. Metal is extremely yellow in appearance; surfaces are very spongy, presumably from surface corrosion; considerable amounts of redeposited copper have formed within the surface fissures.

(C.S.S. comments: Structure contains both alpha and beta phases in amount and distribution typical of a hot-rolled brass with about 40% zinc.)

inclusions is considered to be evidence of European smelted copper (see also Couture and Edwards 1963).

Metallographic analysis of samples of the Coppers was made by Professor Smith whose summary comments follow⁶: "All specimens are made from melted copper. Grain structure shows hot rolling or cold rolling and annealing and not extensive cold worked since. All except PM 65473-11 have oxygen in variable amounts but within spread for early fire refined copper. All in fairly soft state as finished by hot rolling or annealing."

Microprobe Analysis

Finally, to obtain complete information about the chemical composition all the specimens were subjected to microprobe analysis (Fig. 41). The results showed great regularity in the content of the copper. The averages are consistent not only for copper but also for the trace elements. The sample of sheathing from the *Argonaut* (SM 1026) corresponded very closely with the National Museum of Canada examples of Coppers. The piece of sheathing from Salem, with 60 percent copper and 40 percent zinc, proved to be an example of Muntz metal. Finally PM 87180 (Fig. 26a) did not deviate significantly from the other examples. Subsequent metallographic analysis of the majority of samples by Heather Lechtman, whose comments form the captions to Figures 42-51, with additional comments by Cyril S. Smith as noted, revealed that all the samples had oxide inclusions, further confirming the conclusion that all Coppers analyzed were made of European copper.⁷

⁶Metallographic Analysis, Cyril S. Smith: PM 98044—Oxide present and well strung out. Small grain size. Thicker. Oxygen content about the same as others; PM 65473—Fine grade copper. Oxide. Same as 65473-12; PM 65473-6 Has less oxygen, and it is less streaked out; PM 65473-7—Oxide present. Surface coated with molten alloy that has penetrated between the grains. Large grain size of alloy surface. No evidence of extensive cold work after last heating to moderate high temperature; PM 65473-8—Oxide present. Same as others; PM 65473-11—Unevenly distributed poor grade copper, internal cracks, oxide present. Grain size very irregular; PM 65473-13—Oxygen bearing copper, either hot rolled or annealed at fairly high temperature. Not coldworked much thereafter.

⁷H. Lechtman's and C. S. Smith's comments on unillustrated specimens: PM 65473-12 (3)—x 100. Polished section. High density of copper oxide inclusions strung out in the direction of working of the metal; fully recrystallized grains with annealing twins; NMM VII-B-378 (6)—x 200. Polished section. Numerous oxide inclusions; end is rounded; NMM VII-B-378 (10)—x 100. Etched section. Fully recrystallized equiaxed grains with annealing twins; small grains of rounded end indicate increased cold working at this end, presumably to shape it prior to last anneal; NMM-X-597 (3)—x 200. Polished section. Numerous oxide inclusions; NMM VII-X-597 (6)—x 100. Etched section. Fully recrystallized, equiaxed grains with annealing twins; in middle of section there is a depression on one surface and the metal is thinner here; the grains beneath this depression are considerably smaller than the average grain size for the rest of the piece, indicating that the depression (perhaps a surface decorative feature) was made by a tool (like a tracing tool) that pressed down into the metal, cold working it severely; NMM VII-X-1082 (3)—x 200. Polished section. Numerous oxide inclusions; end is rounded; NMM VII-X-1082 (9)—x 100. Etched section. Completely recrystallized, equiaxed grains

Microprobe and metallographic analysis proved to be the most successful methods of analysis in this investigation. Although microprobe analysis is not as precise as neutron activation, it had the distinct advantage of testing for lead, a common alloy in the manufacture of copper sheathing, which is present in small quantities in almost all the samples. Metallographic analysis was essential since many specimens were of such purity that they would have remained problematic without the discovery of the presence of copper oxide. In addition, fabrication data such as the evidence of minimal work after rolling or annealing reveal that some Coppers were not difficult to make and therefore were not necessarily the creations of specialists.

Discussion

The preceding analyses have demonstrated that all the specimens of Coppers are made of European copper. With a few exceptions, they were fabricated of sheet copper, initially produced by hot rolling and probably intended for ships' sheathing. Although there are differences, the similarities among many suggest either common place of origin, date of manufacture, or both. For example, the early Canadian pieces are all much alike in composition and their relative purity compares with that of the early copper sheathing. Moreover, such small size Coppers, one of which MacKenzie reported to have been used in the mode of a shaman's ears hat, are rarer than large Coppers. This finding strengthens the assumption that Coppers increased in numbers with supplies of heavy sheet.

Extrapolating from these specimens which appeared to have the greatest chance of being made of native copper, and which comprise a range of types and provenances, one has to conclude that all Coppers represented in this investigation are made of European copper. On the basis of the historical and metallurgical data and the fact that no Coppers made of native copper have been found either archaeologically or elsewhere, it is likely that few if any native copper Coppers exist.

Furthermore, the historical sources have revealed that very few Coppers existed during the early fur trade period despite the introduction of large amounts of trade copper. Yet observers noted nose, ear, and arm ornaments of copper worn by chiefs and their wives, and the copper collars and copper daggers of the Haida and Tlingit. The collar, a valued possession indicative of status and passed on to heirs, was a complex piece of work. In later accounts it is seldom mentioned and then claimed to be old and rare (MacKenzie 1891; see above). Possibly copper sheet, easily worked into Coppers, was an attractive substitute,

with annealing twins; *PM Salem* (12)—x 200. Etched section. Metal appears to be a brass of high zinc content. C.S.S. comments: Structure contains both alpha and beta phases in amount and distribution typical of a hot-rolled brass with about 40 percent zinc.

precluding the need to travel to the Copper River area in search of native copper and eliminating the laborious effort of beating nuggets into collars. Indeed, the introduction of copper in sheet form may have reduced the technological capacity of the Indians and arrested its further development.

Questions still remain, however, because of the contradiction between the historical and metallurgical data. The metallurgical data indicate the unlikelihood of pre-contact existence of Coppers, but such historical information as Colnett's drawing of a fully realized Copper and the claims made by Indians for Coppers made of native copper point to a long-held tradition. The logical conclusions reached by previous studies (Couture 1963; Keithahn 1964) have not been changed, but the case is somewhat stronger for the second: 1) Coppers were extremely rare, but a handful made of native copper may yet be found, either still held as family heirlooms or awaiting discovery by archaeologists; but such discoveries, without supporting evidence, would not prove their pre-contact existence. 2) Coppers are skeuomorphs of something not yet discovered or thought of. Since the second postulate seems more plausible and the form of Coppers remains unexplained, a search for an antecedent is pursued in the following chapter.

IV. Formal Antecedents to Coppers

The genesis and early development of Coppers were considered in terms of several hypotheses: 1) Coppers replaced another object that differed in appearance but had similar meaning; 2) The copper substance of the copper sheet which had supernatural connotations made it significant and valuable to the Northwest Coast people; the shape and proportions of trade copper sheet resonated with an existing similarly shaped object made of different material but having a related meaning; 3) Coppers are based on a European object seen at the time of contact.

All three assumptions rest on the position that the invention of Coppers emerged at the time of contact for the following reasons:

Relative isolation from unfamiliar outside contact would have encouraged the persistence of traditional forms among the peoples of the Northwest Coast. Given these conditions, Coppers are more likely to have emerged when new materials and forms were introduced through contact with Europeans. Therefore, hypothesis 2 seems more plausible; that is, that the invention of Coppers probably resulted from the blending of trade copper sheet with an object isomorphic to Coppers that existed prior to contact. Supporting this supposition is the fact that the Coppers were adopted by five different societies, which, alternatively, implies recognition and acceptance of the form or shape.

A further assumption based on the historical evidence is that the Haida or Tlingit were the inventors of Coppers. The Haida and Tlingit Coppers seen by Colnett and Lisiansky, both fully realized specimens, apparently had established functions associated with chieftainship. Since the source of copper and the technological competence for working native copper were concentrated in the Copper river area with the Ahtna who were closely connected with northern Tlingit groups, a stronger case can be made for the Tlingit as the originators. According to reports, the Tlingit were technically more accomplished metal workers than the Haida and would have had the competence and sufficient familiarity with the material to make Coppers of either native or trade copper. The contrast in quality of workmanship between the generally well-made Tlingit and numerous crudely formed Haida Coppers offers further support for the Tlingit as originators.

Coppers were first acquired by the Tlingit, according to many early sources, and indeed, three of the earliest accounts deal with Tlingit Coppers. Although numbers of copper sheets were seen by Marchand and later by Jacobsen in Haida houses, since these sightings came after

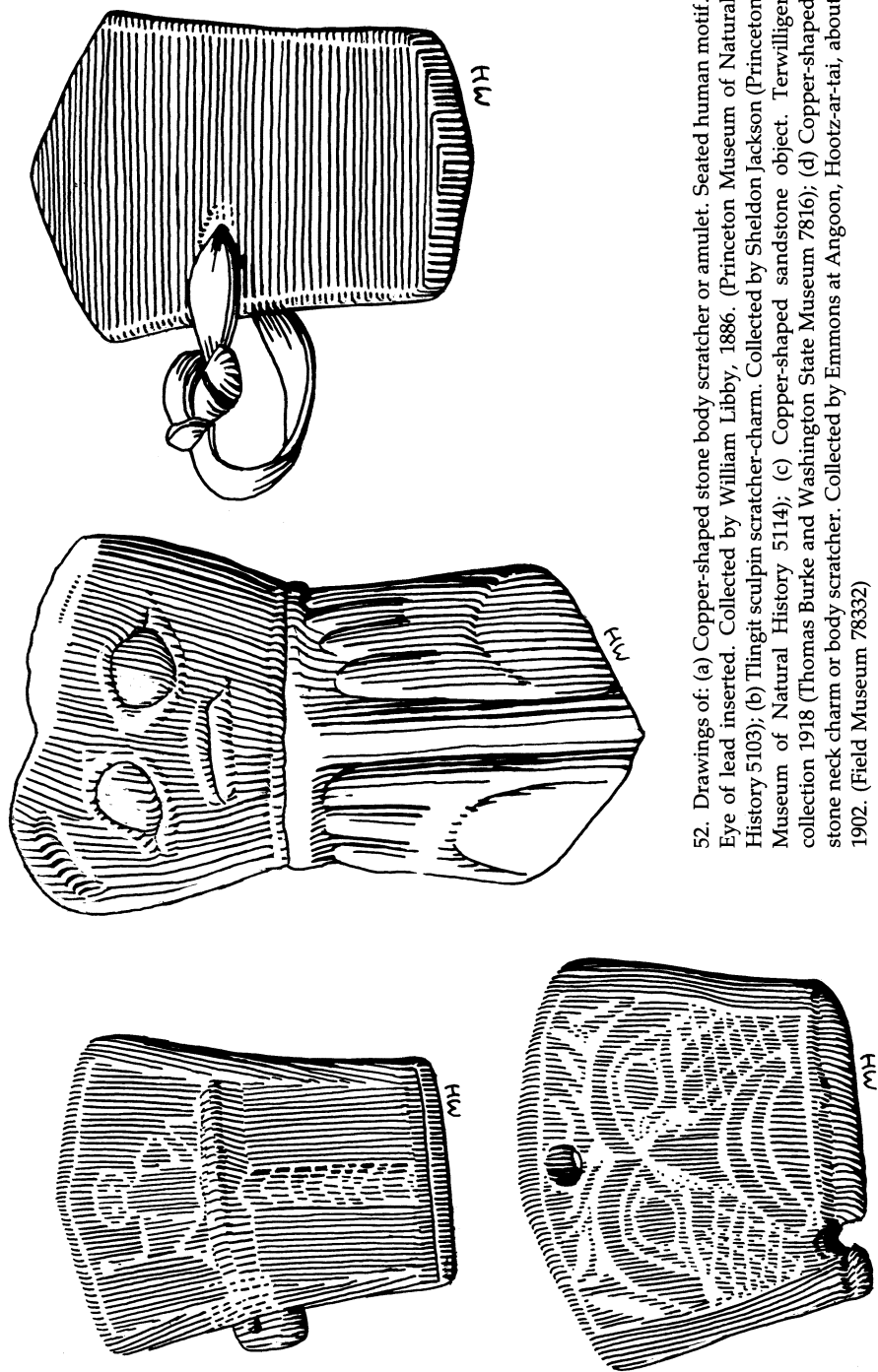
copper sheet became common, they may provide only the information that Coppers were more essential to Haida society than to Tlingit, which indeed seems to have been the case. Whether Coppers were a Haida or Tlingit invention is debatable, but it seems clear that they were a northern one. The use of Coppers in rites of succession seems to have been their original and fundamental function and continued to be the principal one among the Haida and Tlingit. This function also persisted in the other societies, but with modifications and the addition of others. Thus Coppers seem to have been adopted complete with succession meanings first by the Haida, followed by the Tsimshian¹ and somewhat later the Kwakiutl. Still later, the Bella Coola apparently acquired Coppers from the Kwakiutl.

A Copper was an important work of art and therefore represented "a hard-won solution to some problem" (Kubler 1962:33) by an artist who grasped the essential combinations. Presumably once invented the Copper was widely accepted because it fitted northern Northwest Coast visual schema or conception of order, form, and pattern. But neither that assumption nor interpretation of the symbolism of the Copper's form and motifs explain the form or its genesis.

Coppers are entities comprised of metallic substance, a distinctive physical shape, including the T form, and the motifs applied to them. The outline shape of Coppers may be a commonly held configuration long embedded in Northwest Coast aesthetics. DeLaguna points out that the actual shape of Coppers seems to have been traditional, judging by certain Tlingit shaman treasures such as amulets made like miniature coppers (1972:353) (Fig. 52). There is congruence of shape, as well as of proportion and type and placement of motif, on certain objects contemporary with Coppers such as house fronts, Chilkat blankets, boxes, and bowls. In these instances, however, the Copper's shape seems to be incorporated—none appears to qualify as antecedent.

Moreover, examples abound of objects with similar form and different content so the question of the Copper's genesis cannot be resolved on a purely formal basis (Tolstoy 1960:75f). A fundamental issue concerns Coppers as symbols—a type of sign (Firth 1973:74), comprised of both form and content. Coppers were important components in a system, or in Binford's terminology, socio-technic and probably also ideotechnic artifacts (1962:217–18; see also Olsen 1929:11). "The explanation of the basic form and structure of the socio-technic component . . . lies in the nature and structure of the social system which it represents" (Binford 1962:217–18). In searching for formal connections, the meanings associated with copper and Coppers that are tied to Northwest Coast belief systems must not be overlooked. The introduction of quantities of sheet

¹Information provided on Hudson's Bay Company archival material, to which I did not have access, suggests that Tsimshian use of Coppers was recorded, but not until after 1820 and probably nearer 1850.



52. Drawings of: (a) Copper-shaped stone body scratcher or amulet. Seated human motif. Eye of lead inserted. Collected by William Libby, 1886. (Princeton Museum of Natural History 5103); (b) Tlingit sculpin scratcher-charm. Collected by Sheldon Jackson (Princeton Museum of Natural History 5114); (c) Copper-shaped sandstone object. Terwilliger collection 1918 (Thomas Burke and Washington State Museum 7816); (d) Copper-shaped stone neck charm or body scratcher. Collected by Emmons at Angoon, Hootz-ar-tai, about 1902. (Field Museum 78332)

copper might have had small consequence without the meanings attributed to copper by the Northwest Coast people. The resonance of the rectangular shape of copper sheets to some existing object may have triggered the invention of Coppers, but must have been partly influenced by the mythical beliefs attached to the substance of copper.

Testing of the above hypotheses required examination of various documents and records for objects known from the past to the Haida and Tlingit or seen by them at contact: European artifacts, prehistoric relics of the Northwest Coast archaeological and Asian past, and ethnographic objects from Asia and the northern American region. The discussion below focuses on a few objects which show primarily visual congruence, but in some cases, also conceptual relationship with Coppers. Some have been noted previously by Inverarity, Lévi-Strauss, and other investigators, but are included here mainly to bring to bear as many plausible connections as possible. This strategy is based, in part, on former research which pointed out the persistence of ancient Asian designs and patterns in the art of the Haida and Tlingit especially.²

It is assumed that discovery of an antecedent may contribute to knowledge of the Copper's meaning, but a principal interest of this part of the investigation lies in examining the process involved in the acquisition or invention of a new form, its acceptance, and subsequent development. We begin with European objects visible to the Haida and Tlingit at contact.

European Objects

Examples of the successful merging of European and Northwest Coast imagery exist in the *nulmal* masks which incorporate a British or Spanish regal lion face,³ the representations of eagles which were influenced by the Russian imperial and American eagle among other instances. Although there is no evidence that Coppers were used as shields, since Coppers were referred to as shield-shaped breast pieces, and "under armour," European and Indian armors seemed worth examining as possible forerunners. However, Coppers do not resemble either rectangular Northwest Coast shields or European armor, which had largely passed out of existence by the time of contact (Dean 1915:95-99). Among the earliest explorers, probably only the Spanish may have worn armor, and a possible connection with Coppers seems remote. The body image of Coppers may account for this idea.

Some fragments of relics lost during Bering's second expedition are

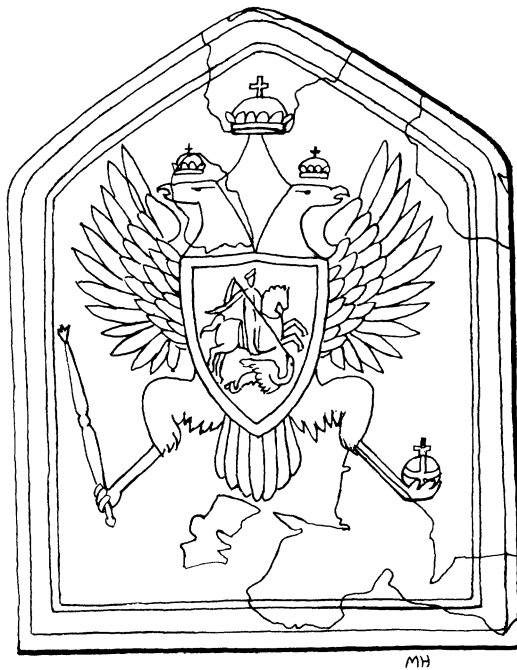
²Heine-Geldern refuted Badner's and Fraser's claims for late Eastern Chou influence on Northwest Coast art, believing that it was closer to, though not directly derived from, Shang. The similarity between Shang and Northwest Coast art resulted from their wood carving origin, he believed; Shang bronzes deriving from wooden prototypes, Northwest Coast art from prehistoric wood carvers' art (1966).

³According to Bill Holm, the original natural source may have been a lynx (see illustration, Inverarity 1971:92).

provocative, however. A thin brass shield embellished with the Russian coat of arms, believed to have been attached to the front of a grenadier's cap, resembles the upper part of a Copper, in particular the triangular-shaped top typical of Tlingit examples (Fig. 53). It is possible that one or more of the men who never returned after being sent ashore by Chirikov to meet the Tlingit at Sitka wore such an emblem. If they did, it is likely that the eagle motif, as much as the brass metal, would have proved intriguing to the Tlingit and perhaps served as inspiration for the Coppers. Though suggestive, this shield form does not account for the T and the lower section. However, if the shape of the Copper is a fundamental form as DeLaguna observed, the merger of the shield-shaped Russian emblem with it is a possible starting point for the invention of Coppers, although the idea seems conceptually tenuous.

Archaeological Artifacts

Northwest Coast peoples like other indigenous peoples of the Western hemisphere came from Asia at different time periods, bringing with them disparate information and patterns of behavior depending on time and place of origin. Limited amounts of information are available on specific connections between archaeological materials (Borden 1962) and



53. Relic of Bering's second expedition recovered from Bering Island, 1882. Drawing reconstructing fragments of a thin brass shield with embossed Russian coat of arms, surmised to have been the front piece of a grenadier's cap (Golder 1967:Fig. 17)

genetic relationships between peoples (Szathmary 1979; Lampl 1979). Such connections are beyond the scope of this investigation which focuses only on visual and/or conceptual resemblances between Coppers and Northwest Coast and Asian objects. The viewpoint here is that elements of ancient forms and possibly related concepts may have persisted in the Northwest Coast cultures. Comparative examination of conceptual and visual commonalities between Coppers and ancient objects from the Northwest Coast and Asia that resemble them may therefore contribute to an understanding of the Copper's form and the possible impetus for its creation.

Northwest Coast Prehistory

Northwest Coast culture developed on a basic maritime culture possibly originating in the North Pacific (Chard 1960; Vasilievsky 1975) and in existence for six thousand years (Grabert and Larsen 1975:221-51). Recent evidence points to a period of generalized hunting and gathering but the basic technology associated with ethnographic subsistence patterns was in place at 5000 B.P. (Ames 1981:797). Evidence for status differentiation in the northern area exists as early as 500 B.C. and by A.D. 1000 such traits as intergroup hostility, trade, and others characteristic of northern ethnography are also manifest (Ames 1981:795). In the southern Fraser River area, evidence for ranking is variously dated between 400 B.C. and A.D. 450, and 950 B.C. and A. D. 460 (Ames 1981:797). The Nootka, Makah, and Kwakiutl, the most maritime of the Northwest Coast people, were longer established in the area. The Haida and Tlingit, generally presumed to have arrived later, brought new features including the hafted maul, grooved adze, rod and slat armor, slate mirrors, and memorial columns.

Artifacts related to Northwest Coast art style, such as animal and human figure bowls of stone, were made as early as 2800 B.P. until 1000 B.P. in the Gulf of Georgia and Fraser River area (Duff 1956, 1975). Subsequent artifacts in the area resemble Salish objects of the eighteenth and nineteenth centuries, including an abundance of spindle whorls in wood and bone (Slettebak 1974). North of the Gulf of Georgia, where there was less stone sculpture, the pieces manifest the northern wood-carving style.

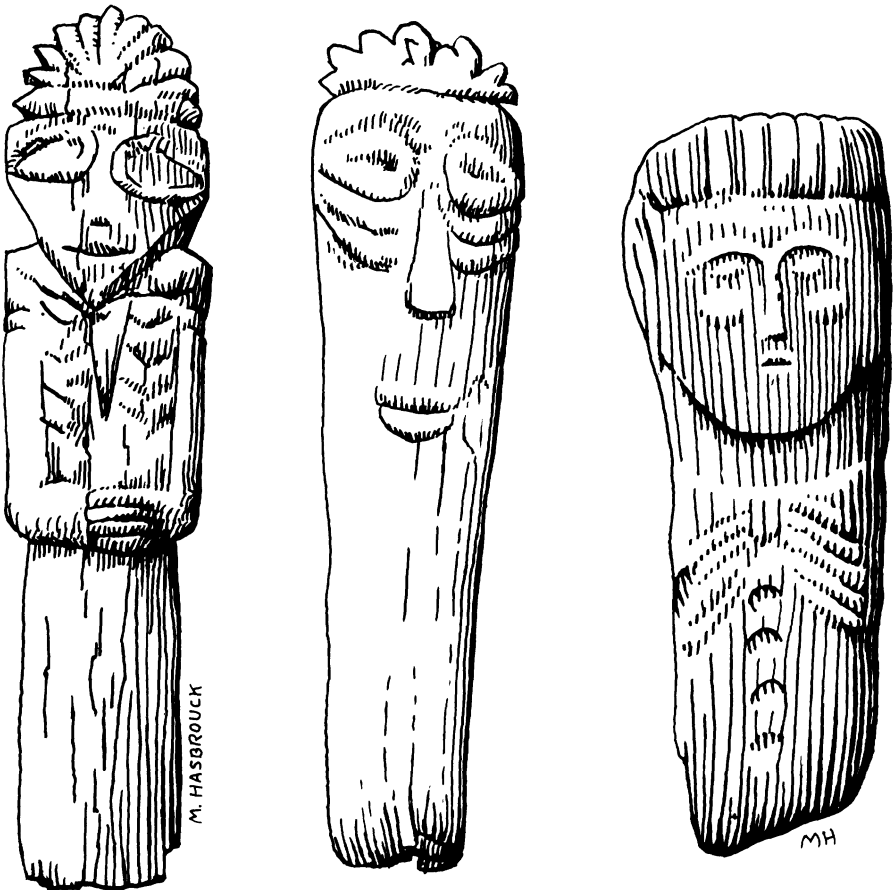
Northwest Coast art, particularly the northern styles, was primarily a wood carver's art; its application to other media carries over the style of wood sculpture (Duff 1956:105). At a site at Prince Rupert dated from A.D. 500 to 1780, the time of contact, the artifacts are similar to those of the northern people in the eighteenth and nineteenth centuries and include mauls, clubs, bowls, zoomorphic art. House sites and associated material culture indicate a ranked village structure (MacDonald 1969).

Northwest Coast Artifacts

No evidence of an object resembling a Copper was found in Northwest Coast archaeological material. Although the shape of a few stone objects

approximates that of Coppers, with the exception of Tsimshian mirrors (see below), the resemblance is so vague that it indicates only that the shape was not totally novel.

Two small human figures carved of bone found in the Dalles area of Oregon (Fig. 54 a and b) resemble Kwakiutl Coppers but also look like Snomish spirit boards (see below). A third (Fig. 54 c) is somewhat more Copper-like in shape. Small prehistoric copper objects are more closely connected with the meanings of Coppers. Some, such as the Haida copper figures put with wealth goods to increase them, were still in use after Coppers were prevalent. Tubular pieces of native copper wrapped around a wood core found at Prince Rupert (B.C. 1500–A.D. 500) are believed to be part of bone or slat armor (Ames 1981:795, quoting



54. Drawings of small carved human figures: (a) Two bone figures from Dalles (FM 258602); (b) (FM 258603) (Field Museum); (c) Human figure made of part of a basaltic column. Sternum, ribs, and legs indicated and daubed with red paint. Found south of Portland, Oregon, by H. I. Smith (American Museum of Natural History pn 45364)

MacDonald and Inglis 1976:12; see Couture 1975:10, fig. 1). However, these pieces and a similar artifact found by Smith at Lytton resemble objects worn apparently as protective devices by the Haida children described by Colnett (1787:136 overleaf, see above). The configuration of these objects and their use seems similar to the neckpieces on carved figures in front of a Salish house (see illustration, Curtis 1913). They are also somewhat analogous to Kwakiutl "wedding gifts," rectangular pieces of copper partially rolled and attached in clusters to stick batons which were gifts to witnesses at wedding potlatches. Yet none of these pieces formally resembles Coppers, so parallels seem to pertain mainly to the material.

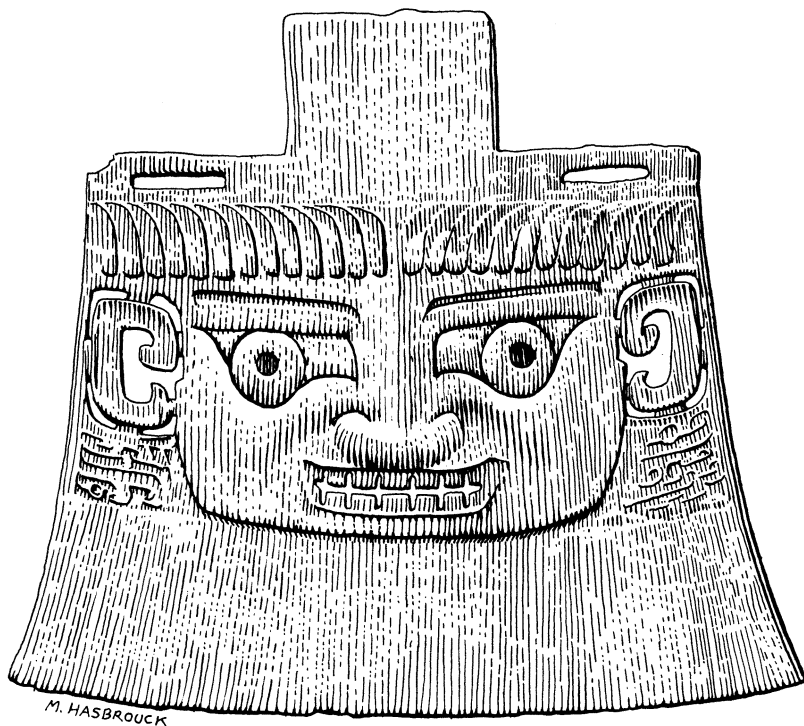
Asian Artifacts

There is greater affinity between ancient Asian and Northwest Coast artifacts. The correspondence between the material culture of China in the Shang and Eastern Chou period and Haida and Tlingit art has long been noted by Badner, Heine-Geldern, Inverarity, and Lévi-Strauss, among others. The discussion here is limited to the visual and conceptual parallels between Coppers and Chinese axes and mirrors.

Axes

Axes were elaborated into emblems of authority worldwide. The ancient Chinese character for king, *wang*, is believed to have derived from a pictograph of a bronze axe (Chang 1980:45). The relationship between Asiatic axes and the Northwest Coast splitting adze has been previously pointed out (DeLaguna 1947:279) and also the hatchet-head shape of Coppers (see also Deans above). Although the orientation is reversed, a Shang *yue* (Fig. 55), found at Hsints'un in Honan, is similar in form to a Copper; the symmetrically placed tang is like the vertical of the T, the curve of the axe blade compares with the flaring upper part of a Copper. But the resemblance between a relief motif of a strong, clearly defined human face and the grimacing human faces on two Coppers is more striking. The human face motif on a Copper with a Hawk design (according to Boas) (Fig. 56) has a pattern of lines radiating from the top of the head like the curving flame-like hair above the brows of the axe face. Similarly the curves of the nostrils and the delineation of the nose are alike.

A Copper collected by Emmons (Fig. 10) has a face which is incised. It lacks the radiating hair, but the straight brows follow the style of the axe-face motif. The round black dots in the center of the eyes of the faces on both Coppers replicate the center circle eye perforations in the axe faces. The area surrounding the mouth follows the same curving pattern of the relief forms on Fig. 55. The eye-like forms at either side of the Coppers' faces could be transformed ears; and the gill marks, a replacement of the cloud pattern below the ears on the *yue*. The facial



55. Chinese yue (axe) supposedly found at Hsints'un, a well-known Shang and early Chou site in Hsun-hsien Province (drawing of illustration in Fontein and Wu 1973:41-43 (Fig. 10)



56. Tlingit Copper (Smithsonian 20778) (same as drawing Fig. 4)

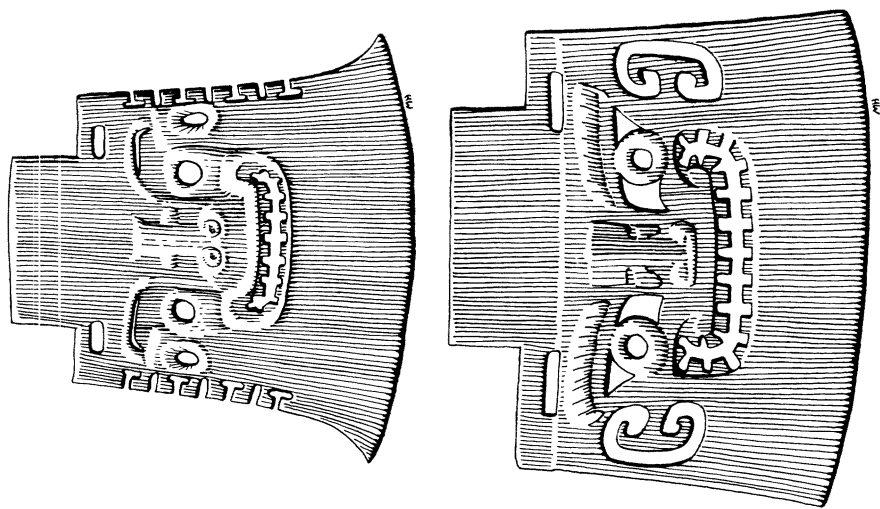
features on all three axes are indicated and enhanced by openwork, a method that corresponds with the Northwest Coast practice of removing the black surface coating on the Copper to allow the metal's gleam to reveal or emphasize the design.

These two Coppers, though not collected until the nineteenth century, and a third, of either Kwakiutl or Bella Coola origin (Fig. 7) which imitates the design, could represent early examples of Coppers. Yet the date of two other similar axes (Fig. 57 a and b) is about 1300 to 1030 B.C., or three thousand years earlier than the Coppers.

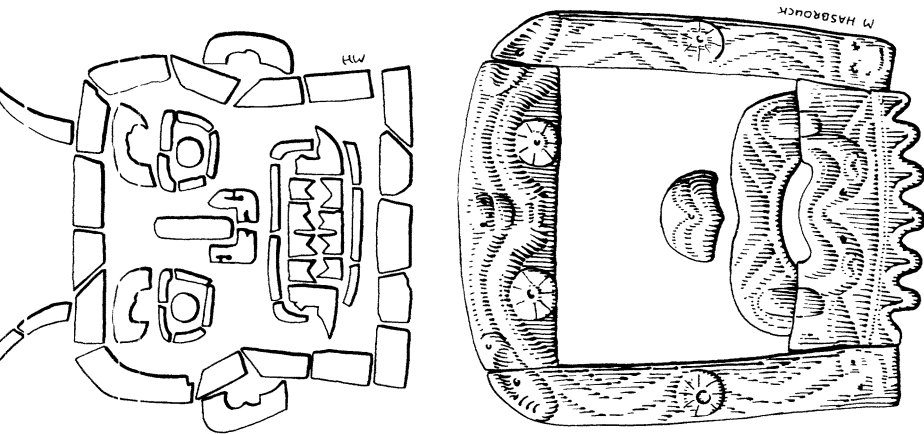
Additional evidence on the *yue* is suggestive of more specific linkages between them and certain North American artifacts. The closest parallels to these examples of *yue* are a group of horse frontlets or chariot ornaments taken from the Western Zhou site of Xincun, Xun Xian, Henan Province. In some of these ornaments, which take the form of human or *taotie* (underworld monster) faces, the faces "are made as separate units probably for attachment to a cloth or leather backing . . ." (Bagley 1980:128). A somewhat similar form, described by Te-Kun Cheng (1963), also uses a Shang assembling technique, in this case, one of wood and shell inlay. "Wood carving provides the basic structure and shell decorative elements of mother of pearl cut into individual units in shapes of eyebrow, eyeball, ear, horn, nose and jaw with teeth were assembled on the woodwork" (Fig. 58a). Both examples recall not only the assemblage schema of the Northwest Coast northern art style, but more specifically Ipiutak Eskimo masks (see also Collins 1973:222-3; Schuster 1952c), apparently indicating that the schema had reached North America by A.D.1 (Fig. 58b). Comparison of the Copper in Colnett's drawing (Fig. 15) (particularly the humanoid motifs) with the Ipiutak mask and the *yue* reveals closer affinity than is apparent in Lisiansky's drawing of a Copper and indeed in the majority of later Coppers.

Other *yue* more typical of Shang art have motifs such as the *taotie*, cicadas, and dragons that correspond with motifs on Coppers in placement and treatment. A curled dragon on one type resembles the profile, outline form, and pose of killer whale motifs on Coppers, and moreover, both creatures represent underwater supernatural beings (Fig. 59).

Although evidence is insufficient to explain the resemblance between these designs on *yue* and those on Coppers, the provenances of the *yue* examples are also suggestive. The pictogram on one (Fig. 57a) indicates that they were "associated with a Shang vassal state that survived into early Western Zhou. Vassal courts [like that at Yidu where the *yue* were found] were often called upon to assist in campaigns against a hostile power. The tribes or statelets . . . were equipped with bronze weapons making use of a metal technology . . . learned at some earlier stage from the Shang themselves The very occurrence of bronze ritual vessels in outlying regions would seem to signify religious and ceremonial



57. Chinese *yue* (axes) from Su-fu-t'ün (drawing of illustrations in Fontein and Wu 1973:43-44, Figs. 7-8)



58. (a) Shang inlay work "Shang wood carving and inlay developed side by side with the shell industry . . . Wood carving provided basic structure and shell the decorative elements . . . Mother of pearl cut into individual units . . . ear, . . . nose . . . assembled [and attached with lacquer to] woodwork. Bronze master in imitation of inlay pieced together different parts of animals to form composite creature" (drawing of illustration in Cheng 1963:136, PIVIII/2); (b) Burial mask discovered at Ipiutak near Point Hope (drawing of illustration in Collins 1973:22-23, Fig. 20)



59. Shang axe with motif of curled dragon in profile. (Cleveland Museum of Art 37.27)

practices held in common . . . and probably acquired . . . in earlier pre-Anyang times" (Bagley 1980:117). This *yue*, probably representative of an outlying vassal state, yet exemplifying the pervasiveness of Shang art style, technique, and concepts, probably emerged before the later florescence of Shang art. The schema found in the Coppers and *yue* may therefore be very ancient; possibly widespread at one time, but later surviving only in remote areas. Thus, the similarity between the *yue* and Coppers, although related to material and shape, is more specific to the motif and its placement. The similarity does not indicate direct links with Shang art which was far more sophisticated, but stems from a common ancient source or results from a filtering of Shang style through a secondary "barbaric" culture. In all three *yue* examples as well as the Ipiutak and Northwest Coast artifacts there is a tendency toward the rectangular which is not characteristic of Shang art (Creel quoted by DeLaguna 1947). The Shang, notwithstanding the importance of their bronzes, had a woodworking technology, which like that of the Northwest Coast peoples was translated into other materials. Because of the pervasiveness of the animal styles which "continued to be main streams

of Chinese art" (Cheng 1963:136), as well as the long persistence of Shang art *per se*, it is possible that the face motif and the *yue* form exerted influence in an area remote from China proper long after the Shang period. As objects originally made of metal were transformed into stone at some Yayoi sites in Japan (Daifuku 1949:262; Chang 1961:80; Ritchie 1962), others may have been created of perishable wood. It is possible that Shang or Shang-like objects made of wood or other perishable material had a very long existence. Certainly, as previously described, some of the schema reached the Northwest Coast (Inverarity 1972).

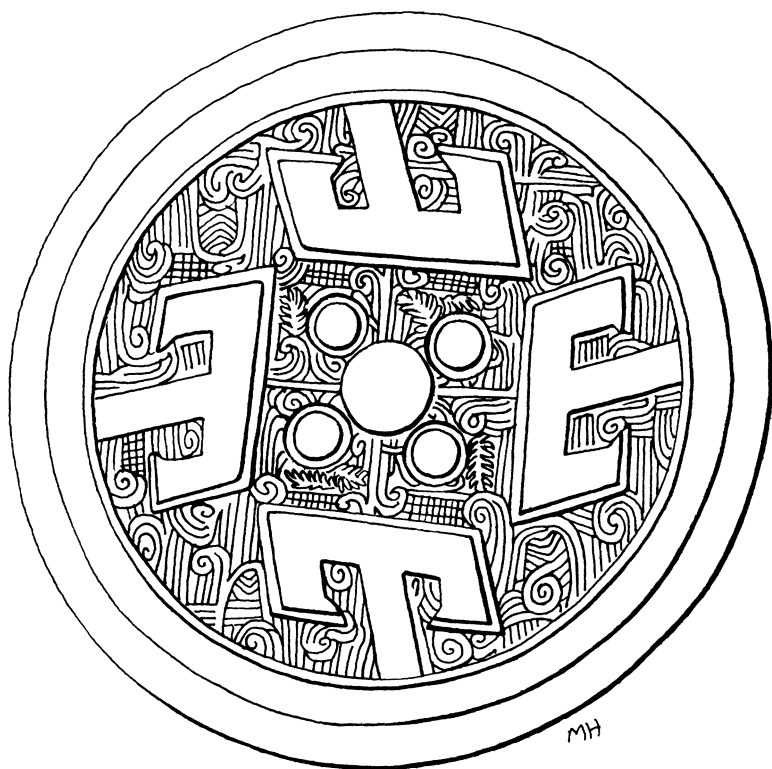
The correspondence in behavior associated with *yue* and Coppers is also suggestive. *Yue* are believed to have been weapons used for dispatching sacrificial human victims (Chang 1976; Cheng 1960; Sullivan 1973). The human face on Figure 55 has been identified as Ch'ih-yu, appropriately the ancient god of war. Axes were also found in burials. The Su-fu-t'un axes (Figs. 57 a and b) were found on the entrance ramp of a large tomb (Bagley 1980:128), a location suggesting that they were not mortuary gifts, but served a ceremonial purpose in connection with burial rites. The use of axes in burials apparently persisted into the Han period, long after the practice of burying human sacrifice had been discontinued.

In spite of correspondence, the parallels between Coppers and *yue* do not confirm connections between them. Yet the more direct link through the Ipiutak mask reveals the probable antiquity of the motif on Coppers. The similarity of the human face and killer whale motifs on *yue* and Coppers, combined with the relative differentiation of their placement, indicates independent persistence of the ancient motifs themselves. The conjunction of the ancient human motif with a new form created of trade sheet copper perhaps legitimized the Copper.

Mirrors

Chinese mirrors do not resemble Coppers in form. Most are round thin bronze discs, four to five inches in diameter, although a few square ones were made in the fourth century A.D. The majority are ornamented in low relief on the back and have a loop at the center for attaching a cord. The edge, thickened and sometimes raised, is separated from the design by a broad concave band (Watson 1962). Bronze mirrors of good quality, cast on a fairly extensive scale, were widely available in various areas of Asia.

Nevertheless, the T-form motifs on certain Chinese mirrors seem linked to Coppers. The T as a decorative motif known as interlocked T's appeared as early as the Shang period (Karlgren 1941:30, but slanting T's on mirrors of the late Chou to early Han periods are separate entities; Fig. 60a). The Shouchous region in the state of Ch'u produced mirrors of astronomical significance with large staggered T-shape motifs resembling the later form of the character *shan* (mountain) (Sullivan 1973:82).



60. (a) Early Chinese mirror with slanting T's (Karlgren 1968:17); (b) Mirror with TLV design, period of Wang Mang (drawing of illustration in Swallow 1937:12,5)

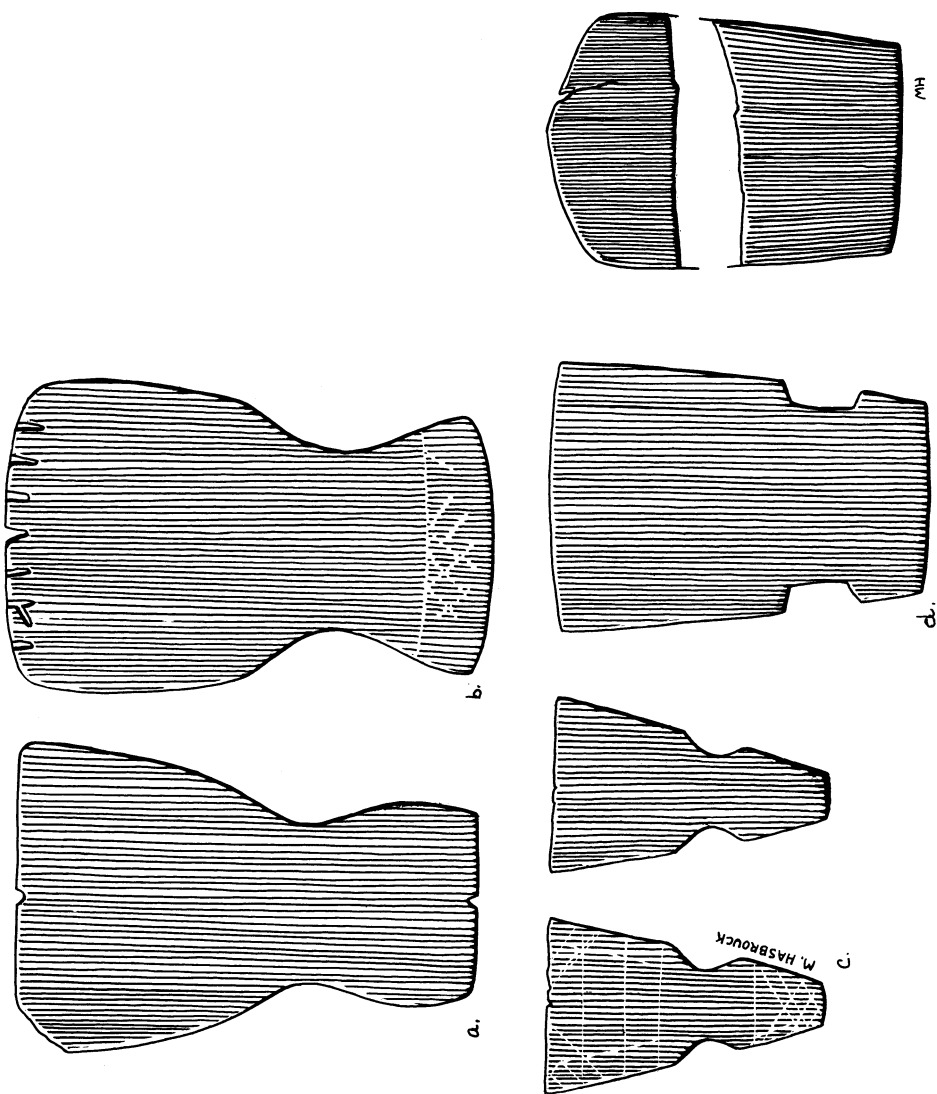
TLV mirrors (so-called because of the motifs resembling the letters) were made from the second century through the Han period. The TLV design is believed to be a cosmological diagram combining celestial and terrestrial symbols (Ibid.) (Fig. 60b). According to the specific interpretation of one TLV mirror, the outer circle is the enclosing rim of the dome of the sky which falls within the bounds of the square of the earth marked by four V's spaced around the rim. The inner square represents China, which is surrounded by four seas, the realm of barbarians and unknown beings, and the T's are conventionalized gates. Four arrow-shaped projections or L-shapes around the periphery between the V's are representations of divine power (Cammann 1949:117).

Chinese mirrors were symbolically connected with the sun and moon. In the Han period, the mirror was viewed as a supernatural agent of the sun, moon, and stars which controlled the destiny of man. The brilliance of the shining bronze typified the supreme intelligence of heaven. Following the Han period the mirror came to have the power to ward off evil, to reflect the invisible, to reveal the unknown (Hall 1955:187-89). As a result, it was placed in graves to help disclose the spirits and thus guide the dead on their journey (Watson 1962:92). Mirrors were worn by warriors who took them into battle held against their chests. Doctors used them in the diagnosis of illness, and the bride came to her spouse holding one to her heart (Rudenko 1970:114-16). They eventually became associated with good fortune (Swallow 1937:31,68; Watson 1962:92).

The conceptual parallels between Chinese mirrors and Coppers may arise from meanings attached to the copper material they share, such as relationship to the sun, the capacity to ward off evil by reflection, and connotations of good luck and increased riches. Other correspondences such as the carrying of a mirror (Copper) by a bride at her wedding and the cosmological meanings of the TLV mirror and those proposed for Coppers imply links with an ancient source. Schuster believed that the cosmic symbolism of the Chinese mirror related to an "Ancient substratum of belief" still manifested in designs encircling the smoke hole of Mongolian yurts—a cosmic diagram which established the axis of the universe and indicated the supernal Sun or Sun-gate at its summit (1951a). The house of the northern peoples of the Northwest Coast retains a similar order.

Coppers incorporate connotations closer to Chinese than to slate Tsimshian mirrors despite the Copper shape of the latter. Tsimshian mirrors, sometimes called scrapers or palettes when found archaeologically in prehistoric sites (Stewart 1973:45), are said to have been invented by the Niska (Fig. 61 a-d). Made of greyish black slate, they were worn suspended on a cord around the neck by upperclass women; when needed for reflection they were wet with saliva or oil (Emmons 1921).

They are variously decorated: a few have notches at the top; others



61. Tsimshian slate mirrors. Drawings of illustrations in Emmons 1921: (a) Pl. I; (b) Nass River, collected by Newcombe (Pl. III); (c) Upper Skeena (Pl. IV); (d) Excavated Kuldo, Upper Skeena (Pl. V); (e) Drawing of Copper-shaped slate object, Cottonwood site, Cook Inlet (DeLaguna 1934; Plate 37, Figs. 1-2)

parallel horizontal lines, cross hatching and other linear devices; and one has a face carved on its upper portion like a motif on a Copper (not illustrated). A Copper-shaped object of slate was found at the Cotton Wood site at Cook Inlet (Fig. 61e) (DeLaguna 1934). As noted above, the existence of pre-contact Copper-shaped objects provides the significant information that the form existed before contact. Tsimshian mirrors appear to have magical properties, but insufficient knowledge of their meanings limits any specific connection with Coppers beyond their shape.

Discussion

The schema—forms and concepts—of the Shang *yue* and Chou mirrors are too similar to those of the Coppers for the resemblance to be dismissed. Since the associated cosmic ideology was so nearly universal throughout northeastern Asia and Chinese mirrors themselves were so widespread, it seems reasonable to assume that the concepts could have come to the Northwest Coast with the Haida and Tlingit or possibly before.

The often remarked correspondence between the art of the Haida and Tlingit and Chinese art of the Shang period must rest in part on: 1) aesthetic similarity which is linked to ancient concepts; 2) similarity in wood carving schema and mode of composition; and 3) the fact that “the elements of design are all taken from life. There is nothing fanciful. The motifs or type forms may be treated realistically or conventionally, yet Shang artists went direct to nature for inspiration” (Cheng 1963:136); and so did Northwest Coast artists. These similarities seem inadequate for explaining the close formal affinity of particular motifs such as the human faces compared above. At present, the Ipiutak mask is the only known indicator of a specific connection, but it is enough to suggest that the motifs on the axes, but not the axe form itself, may lie behind those of the Coppers. The antiquity of this imagery seems to underline the value with which Coppers were imbued. The differential use of this imagery on Coppers points up once again distinctions among them and probable differences in value.

Though provocative, the investigation of ancient Asian and Northwest Coast archaeological objects does not resolve the issue of an antecedent. We continue with relevant ethnographic materials from the Northwest Coast and Northeastern Asia.

Ethnographic Artifacts

Previous research has noted the widespread incidence of many Northwest Coast social characteristics such as gift exchange and ownership of slaves which not only extended throughout the northern region but also to peoples in Washington, Oregon, and to some extent, northern California (Gibbs 1877; Kroeber 1923). Certain board-like objects of the peoples of these areas, which were shaped somewhat like Coppers, had

parallel functions in first salmon and burial ceremonies. These effigies were widespread and probably ancient in concept since similar slab-like figures are found in ancient China and throughout Southeast Asia and in Melanesia (Ling 1959). Among the Chinook and Chehalis, a *tamohu-*us** (spirit) board of the owner was placed near the chief at his burial. The Puget Sound Indians constructed effigies of a chief, resembling him as nearly as possible (Gibbs 1877:203). Planks carved with rude effigies and painted bright red were seen placed upright along the Washington Coast (Wilkes 1845:128–29). Although such figures seem close to totem poles, others were representations of guardian spirits. A Cowichan shaman always had standing beside his bed a thick plank carved by himself or a skilled person to represent his vision (Curtis 1913). Power was believed to enter cedar boards held by spiritually endowed members of the Puget Sound Shake religion (Waterman 1924). On the assumption that Coppers may have replaced comparable effigies, two objects whose formal and conceptual affinities with Coppers have been previously noted are examined in detail: the spirit power boards of the central Puget Sound area people: Suquamish, Duwamish, Snoqualmie, Snohish, and Skykomish (Dorsey 1902; Haeberlin 1918; M. Smith 1940; Wingert 1949) and Swaixwe masks (Codere 1948; Curtis 1913; Lévi-Strauss 1975; Wingert 1949). These objects have some uses and functions in common as well, which alternatively are related to those of Coppers.

Power Boards

Power boards made of cedar were created, owned, and used by each shaman in a guardian spirit recovery ceremony. The boards were generally flat planks with sharpened ends to stick in the ground, but the tops (known as heads) varied in shape according to ethnic group. Bands of cedar bark were often placed around the necks (M. Smith 1946:310). The Duwamish boards had a snout-like projection, representing teeth or an open beak (Wingert 1949:79–80), and were as much as seven feet high and twenty inches wide. Other boards were smaller, about three to four feet high (Dorsey 1920:228). Some were made in pairs occasionally referred to as male and female (M. Smith 1946: plate D). They were painted white with figures in black and red (Dorsey 1902:228), and the designs, except for the central figure and its placement, were generally similar. Before the ceremony each shaman painted the board to activate it with a representation of his own particular supernatural power, usually an animal (M. Smith 1946; Wingert 1949).

The boards were used in the now extinct spirit canoe ceremony (Sbetedag) (Dorsey 1902:234) which was performed to prevent a person's death by retrieving his guardian spirit believed to have been taken by ghosts to the land of the dead. Two kinds of guardian spirits were acquired during their youth by both men and women. One had the

power of healing, the other brought luck in gambling, hunting, and fishing. The strongest wealth powers came in a canoe, and were expressed by the giving away of property (M. Smith 1940). The purpose of the spirit canoe ceremony was to cure a person's illness caused by the loss of his *skala'letut* or riches-gaining spirit. Eight shamans were called upon to enact with their boards the journey to the land of the dead and recovery of the spirit (Haeberlin 1918:248-57).

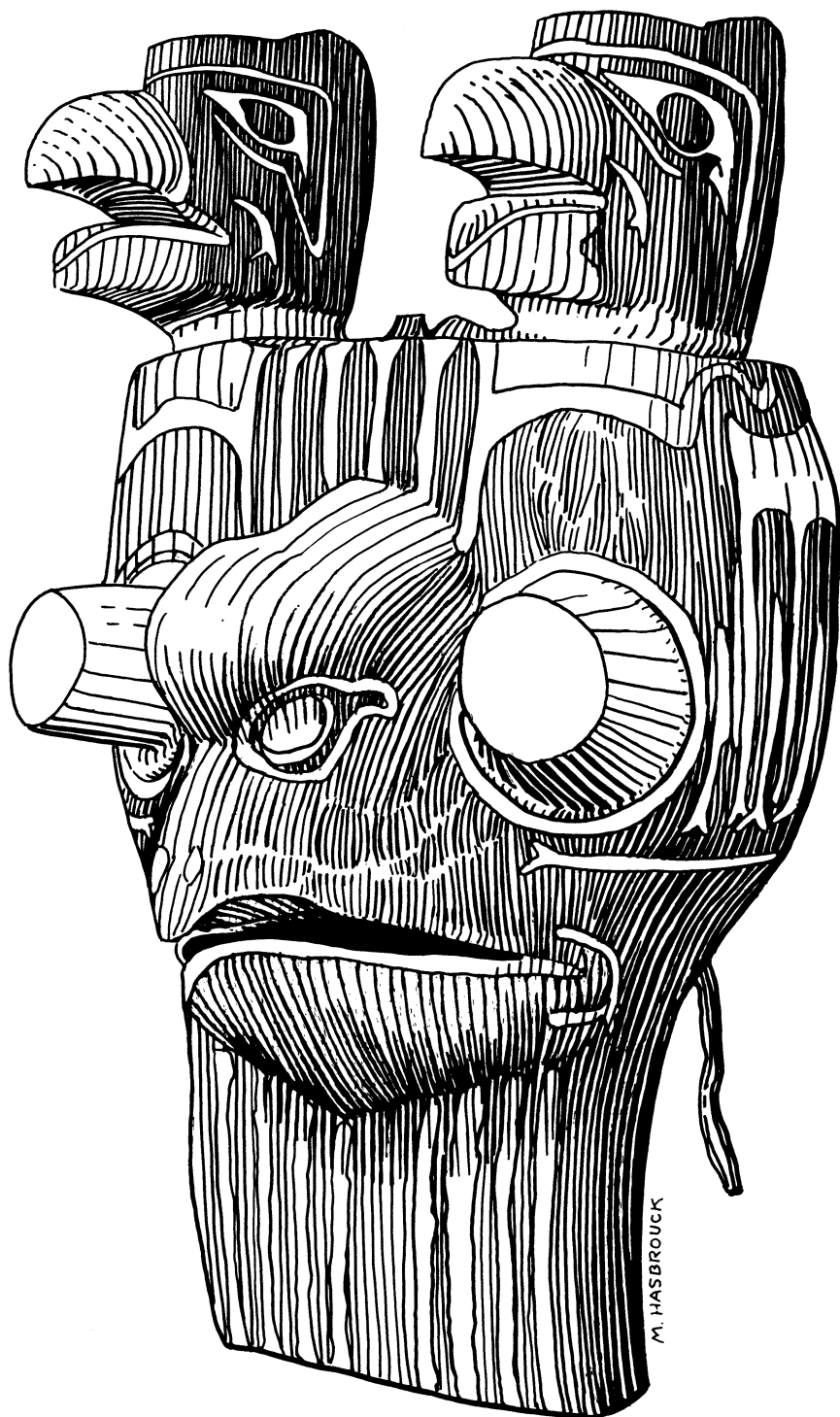
Discussion

Correspondences between power boards and Coppers include: symbolizing of supernatural power; placement next to the deceased in succession situations; and similar wealth-bringing connotations. The activation of power boards by painting parallels the reconstruction and painting of Kwakiutl and Bella Coola Coppers. The creation of a canoe image with power boards for the transport of shamans to another realm recalls the construction of a canoe at Kwakiutl marriage ceremonies as similar evidence of passage to another realm. The Kwakiutl bride's *gyisteral*, ornamented with face designs created with sea otter teeth, displays some formal connections with power boards.

The congruence between spirit boards and Coppers has been interpreted as indicative of the diffusion of a cluster of characteristics from the north (M. Smith 1946). The position taken here is that a widespread ancient complex of beliefs is differentially expressed by closely related objects, Coppers being only a recent manifestation. Power boards have no representation of the T, and their guardian spirit association, though related, seems to differ from the Coppers' symbolism of chiefly wealth/supernatural power. Yet the comparative examination of power boards and Coppers has revealed the prevalence and antiquity of many concepts associated with Coppers. It is thus evident that even if Coppers were recently invented, they were tied into a commonly held symbolic system.

Swaixwe Masks

Swaixwe masks not only look like Coppers as Wingert observed (Lévi-Strauss 1975:109), but their composition synthesizes many ancient concepts and forms from Northeast Asia and China, as well as a fusion of northern and southern Northwest Coast art (Badner 1966; Codere 1948; MacDonald 1977) (Fig. 62). As Holm observed, "the probability is that Salish as well as Northern art developed on a widespread basic art expression. This art [Salish] may actually be closer . . . to that earlier, widespread tradition" (Holm and Reid 1975:58-61). The similarity between Coppers and Swaixwe masks arises not only from their relationship to each other, as claimed by Lévi-Strauss (1975), but also from their common links to ancient sources specifically manifested by tongue and bird imagery.



62. Swaixwe mask created by the Salish, particularly in the Cowichan district of Vancouver Island. Collected by C. F. Newcombe, British Columbia Provincial Museum 2364 (drawing of illustration in Inverarity 1971:62)

Swaixwe were supernatural beings living in lakes. If a person succeeded in bringing one to the surface, he and his descendants acquired its protection and assumed the mask as the crest of their family (Codere 1948). The rights to make and use a Swaixwe mask were inherited, but a mask could be rented out (Patterson 1973:152) like a Bella Coola Copper. The mask was used in dances performed in the summer when property was distributed.

The myth of Swaixwe tells of a boy who has a skin disease, a manifestation of impurity, and thus a barrier to the acquisition of wealth. Deciding to commit suicide, he dives to the bottom of a lake where he encounters a Swaixwe in its home, is cured by it, and returns to the land. At his request his sister throws a line into the water and pulls up a mask, a representation of the underwater being. Cleansed of his disease, the boy becomes wealthy. The mask is given to the sister for her husband, presumably then to be given to their offspring (Codere 1948), a pattern of inheritance similar to that of the Tlingit and Haida, but given in the mode of Coppers at Tsimshian and Kwakiutl marriages.

A Kwakiutl myth describes a comparable event:

Helkin is ill with sores on his body. He goes inland with the intention of killing himself and arrives at a mountain called "Having Toads." Here a large toad tells him to take the soft layer of her vest, wet it in the pond of the water of life and sprinkle and wipe himself with it. Helkin is cured of his sores and receives a copper and the name Head Copper Maker. He gives the copper to his sister "Now you will carry this copper on your back to your future husband" (Codere 1948:71-72)

A story told me by a Kwakiutl, Tommy Hunt, is in essence a description of the behavior necessary to realize the wealth brought through an encounter with a giant supernatural frog. "Keep your eyes on that frog, or it will fade away, and slowly softly reach behind and grab a big stick, and quick bring it down and smash that frog. Then take a knife and cut down the center of the skin of that frog's belly, and lay that back and take out that fat pad underneath. Keep that fat with you always and you gonna be rich" (1977). The wealth-bringing results of these encounters with Swaixwe and frogs or toads, which are clearly the related natural beings, the idea of underwater as the source of purity and wealth link Swaixwe mythologically with Coppers.

Tongue Imagery

The Swaixwe masks' protruding eyes, which resemble similar protrusions on some Haida and Kwakiutl Coppers, and the long tongue, like a Copper's T in configuration, are not only frog-like characteristics, but also reminiscent of objects created in South China during late Chou, as Badner and others have observed (1966; Lévi-Strauss 1975). Badner also demonstrated the importance of the tongue as a recurring motif in

Haida, Tlingit, and Kwakiutl art.⁴

Though the mythology of the Northern people lacks tongue references, real tongues of animals—especially land otter—were of enormous significance to them. Land otter, being underground animals, were believed to communicate with the land of ghosts and were feared by the Tlingit for their power to capture and transform people into *kustaka* or *gigixit*, a kind of land otter. Land otters saved those who capsized in the water or fell overboard, carrying them off to their own lands (Shotridge 1922:55–59; Peck n.d.). The Tsimshian and northern Haida believed that possession of a land otter tongue enabled its owner to call upon the creatures of the unseen world to do his bidding (Swanton 1905a:40). A Tlingit shaman had to cut off the tongue of a bird or animal to achieve his power, the most powerful being that of a land otter. When a candidate, having fasted and purified himself, was prepared for the spirits to enter his body, an animal would cross his path and drop dead. Continuing to fast, he took it to his dwelling, where an unseen force guided his hand holding the knife as he cut out the animal's tongue. It was believed that the spirit of this animal, acquired in the tongue, was superior to any other in the body and that it would dwell within him as long as he was a shaman (Peck n.d.).

Discussion

Presumably, tongues were conceived as tangible evidence of supernaturally endowed life force manifested by the capacity for speech. Oral capacity in speaking, evidence of spirit presence, was one manifestation of life. Singing, whistling, and sounds produced by rattling and drumming displayed supernatural presence and were also means of communicating with spirits (LaBarre 1964). Shamans spoke with the voices and languages of their spirits (DeLaguna 1973b:227). Names were never merely passed on, but proclaimed aloud at ceremonies as if to call them into being. After death, among the Tlingit the spirit (the voice in the throat) went into an owl (see also Tambiah 1968).

A graphic representation of the tongue as link between spirit and human is portrayed on Tlingit and Haida rattles, where an animal, usually a frog or raven, transmits power with its extended tongue to a reclining human, presumably a shaman, in a mode implying coitus as well (Badner 1966:20). Evidence of the tongue as life force within the body is perhaps demonstrated by the technology of a dagger, where the tang of the blade is carried through the animal's (Wolf) head to form the tongue (J. Witthoft:pers.comm.) (see also Fig. 14).

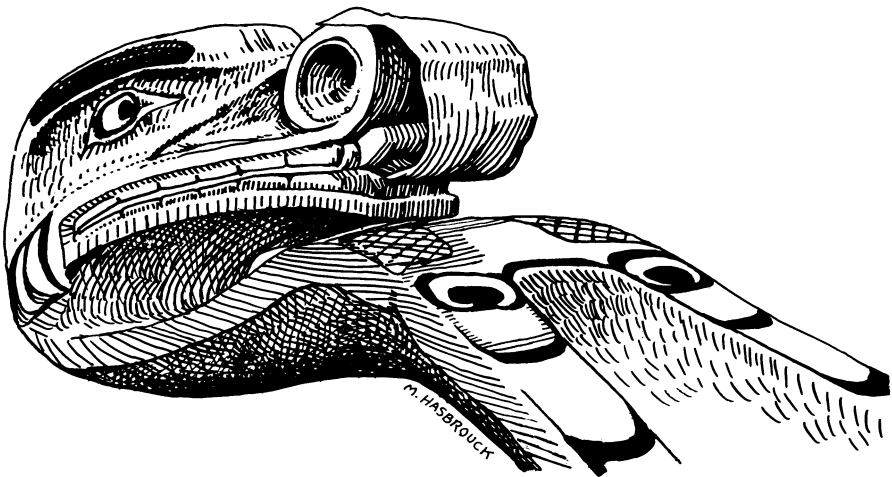
In northern art, tongues are represented in association with many

⁴Badner sees representations of the tongue as completely arbitrary symbols not derived from nature. The view here is that tongues in Northwest Coast art did not originate solely from nature, but the tongue as symbol was congruent with concepts associated with animal tongues.

different animals on a wide variety of objects. The similarity of tongue representations regardless of animal indicated to Badner that "tongue designs may have developed prior to or at least independently of the creatures with whom they are associated" (1966:20). Even assuming antiquity for the tongue motif, it was further vivified by belief in and use of real animal tongues.

Protruding tongues on images of animals and humans appear to codify certain degrees of vital power such as strength on bear images, which are themselves symbolic of chiefs. Labrets worn by chiefly women, which are enlarged throughout life as evidence of increasing power/wealth, may refer to protruding tongues, which in profile they resemble. Certain protruding tongues signify loss of power through death, either by natural causes or by killing as in a representation of a slave or victim with extended lifeless tongue. Nootka slave killers convey the double meaning of dying victim and tongue as death bringer (see illustration, Inverarity 1971:139). The limp tongue of a sea monster transporting skeletal and thus apparently dead humans symbolizes death (see the ivory soul catcher carving illustrated in Harner and Elsasser 1965:100).

Coppers look like tongues in some representations and are used as substitutes in certain instances, such as a Wolf figure (Fig. 63), but replace them ambiguously in others, so that it is not possible to determine if a Copper represents a tongue, or is being devoured or extruded. Tongues and Coppers appear to be analogically connected as symbols of life and vitality activated by a spirit. As the acquisition of an animal tongue endowed a shaman with spirit power, acquisition of a



63. Kwakiutl ladle with Wolf head handle. Wolf has Copper-shaped protruding tongue. (Thomas Burke and Washington State Museum)

Copper brought wealth (spirit power). Yet the Copper seems to resonate with the tongue form rather than to have been inspired by it.

Bird Imagery and Breastpieces

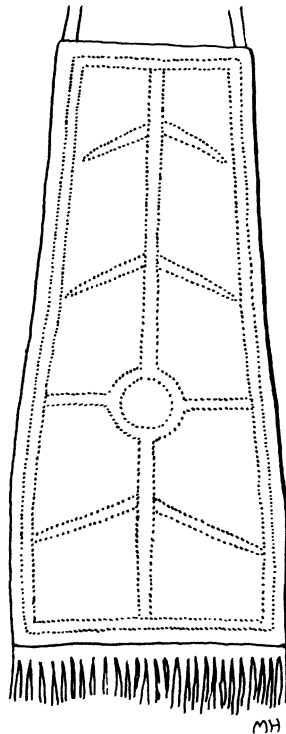
The central bird image of the Swaixwe mask has a formal prototype in a Permian bird of Russia with tail feathers beneath forming a vertical or flaring striated line (Badner 1966; see also Holm and Reid 1975:58–61; MacDonald 1977). That this bird connection is not fortuitous or unique is demonstrated by comparisons of other Russian bird representations with Kuskokwim area Eskimo masks (Badner 1966; MacDonald 1977) and also Pazyryk (450 B.C.) and Northwest Coast and Eskimo objects (Haskins 1962). A horse's circular frontlet from Tuekta decorated with griffins is almost duplicated by the design of thunderbirds on a Salish spindle whorl (see illustrations, Jettmar 1967:plate 20; Inverarity 1971:31). For the present investigation, the association of the Swaixwe mask with Asian bird imagery is particularly salient since it leads directly to the bird-like costumes of Siberian shamans, and from them to Tlingit dress and the particular element of the mantle, a potential antecedent of Coppers.

The costume of a shaman (a Tungus word) portrays the skin of a bird which grants the shaman's spirit its power of flight. In Siberia the Selkups' and Kets' shamans among others wore costumes explicit in their bird imagery. The robes formed a whole, either a bird, the more common image—or a horned animal (Chadwick, quoting Holmberg 1936). The front was shorter than the back, which had a wedge-shaped projection at the lower hem called a bird's tail. The shaman's hair was never cut, sometimes because it was the dwelling place of the souls of the clansmen (Anisimov 1963:116–17). Left to grow it resembled a bird's trailing tail. A Tungus shaman's boots were decorated with bird's foot patterns sewn with yellow glass beads (Chadwick 1936:86). The costume was also conceived as armor and hung with many protective pendants, some soft such as a wolf's claw, others of iron or copper with specific references to bird bones or feathers. Sometimes bird bones were fixed to the sleeves which were called wings (Prokofyeva 1963). The headdress was also fringed with these and sometimes decorated with the head of a bird (Chadwick 1936:86).

According to Jettmar and others, the shaman's robe is derived from a costume that was ancient and widespread in Siberia. "The tailcoat seen in North America and among the Eskimo and the Tungus was a combination of a tailcoat and a stomacher which left each foot free. Today it is seen in far districts or as a costume of shamans and its stomachers are hung with animals and other symbols" (1951:196). The breastpiece (stomacher)—the most enduring element of the ancient costume—appears to be a possible antecedent of Coppers (see also Siglar n.d.).

Some investigators believed the breastpiece, which had its own sequence of development (Okladnikov 1964), to be of very ancient, possibly Chinese origin (mentioned in a Chinese source in A.D. 263) and transmitted north by the Tungus to the Amur river area (Levin 1963:173). It was worn by the Tungus on the naked body inside the coat and was always tied by a strap around the neck and another at the waist (Hatt 1969). It represented a bird's breast or breast bone (Levin 1963:173). The breastpiece of an Enets shaman's robe is decorated with a bird's breast bone motif or one referred to as the breast bone or keel of a bird (Fig. 64). Trapezoidal in form, it is made of white deer leather dyed red and trimmed with white fur with black strips at the edges and bisecting it longitudinally along the median. The center strip is intersected by strips forming crosses with sloping ends; a black circle in the center represents the bony part of a bird's breast; the red fringe at lower edge, feathers (Prokofyeva 1963).

Breastpieces vary among the many Siberian peoples who wore them, but some almost duplicate the outline shape of Coppers. Several have rib-like motifs reminiscent of Kwakiutl Coppers. It has been suggested that, through the trading of esoteric knowledge common among shamans (MacDonald 1977:4-5), breastpieces could have come to the



64. Design on an Enets shaman's breastpiece (drawing of illustration in Prokofyeva 1963:138, Fig. 16)

Northwest Coast and served as inspiration for the invention of Coppers (Siglar n.d), but the western Dene wore a piece of clothing which resembled the Tungus pectoral blanket so a breastpiece model was long extant near the Northwest Coast area.

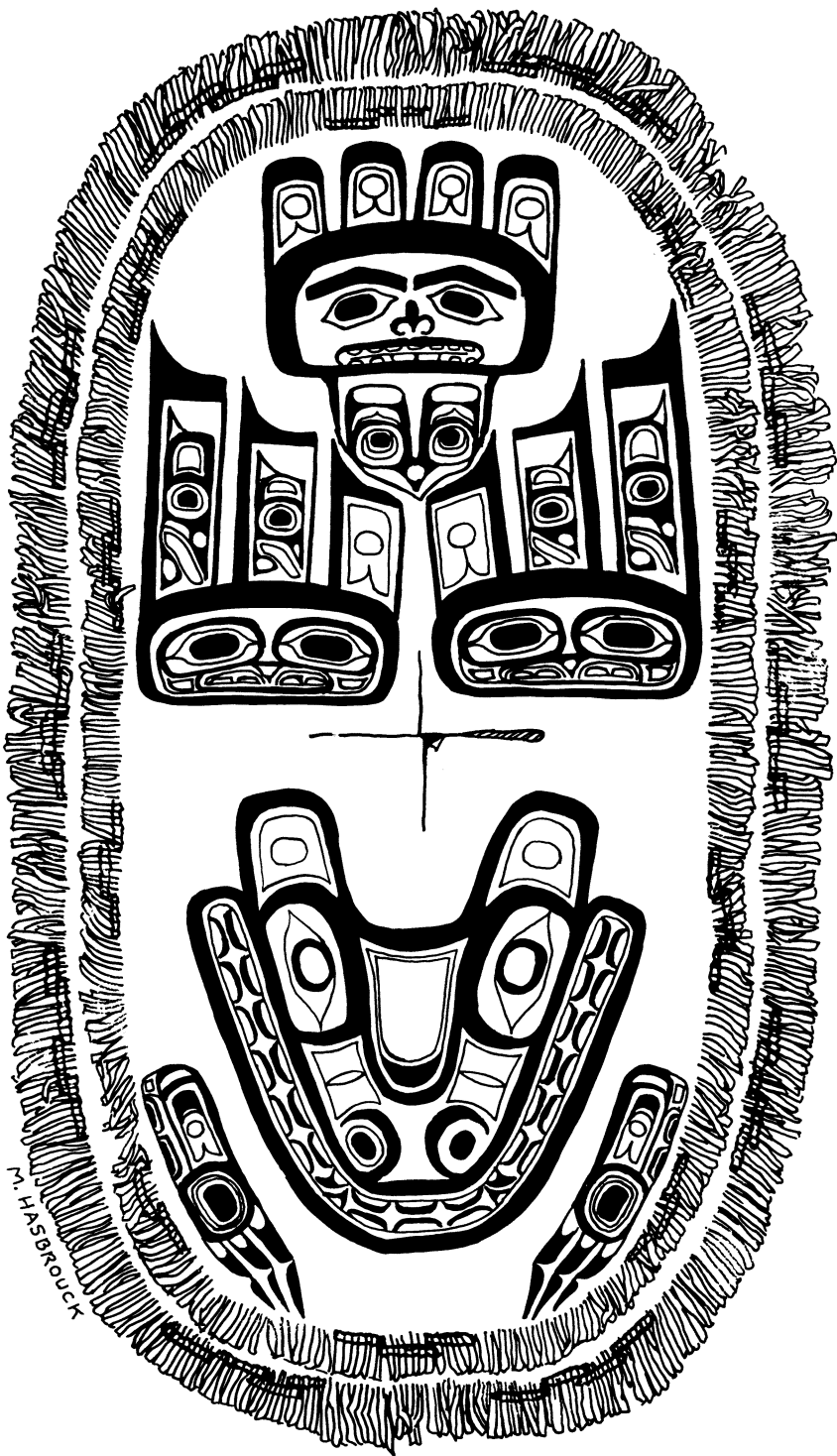
Haida and Tlingit shaman attire clearly represents comparable bird imagery. The Tlingit shaman's costume consisted of a fringed dance apron, sometimes like a Chilkat blanket, but usually painted hide, and dance leggings. The shaman's long trailing hair was never cut or combed for fear that he would die (DeLaguna 1973b:227). He wore a necklace of esoteric ornaments of bone and ivory and a whetstone⁵—sometimes carved to resemble a Copper which he used as a head scratcher—hung about his neck. He also wore a bone in his nose when so commanded by his spirits. A shaman's equipment included a rattle, oval-shaped among the Haida, elsewhere depicting a raven or crane, and a distinctive hat with ears (Swanton 1908b:463–69). Warlike imagery was manifest in the armor of Tlingit shamans (DeLaguna 1973b:227) and the daggers for fighting malevolent spirits. Shamans of rival towns fought each other by calling upon their spirit helpers which consisted of such animals and birds as the loon, crane, eagle, otter, and deer, many of which were common to both Siberian and Northwest Coast shaman.

The costume of Tlingit shamans certainly seems closely related to the Siberian, but there is no evidence of a breastpiece that is Copper-like in shape. Early ethnographic evidence shows that leather breastplates were once elements of Tlingit clothing (Ganiushkina et al. 1973:3), but it seems possible that a link to Coppers can be made with an object that seems conceptually related to a breastpiece, the parka-like mantle or shoulder cape worn by chiefs on ceremonial occasions when enacting the role of earthly representative of supernatural ancestor. These mantles differed, but usually they were elongated ovals with a slit in the center for the head to pass through (Fig. 65). Similar mantles or smaller bib-like neck pieces were said to have been worn by shamans at curing sessions.⁶ Given the importance of shamans in Tlingit society and the parallels with chiefs (Tlingit chiefs could be shamans), similarities in such articles of dress seem probable.

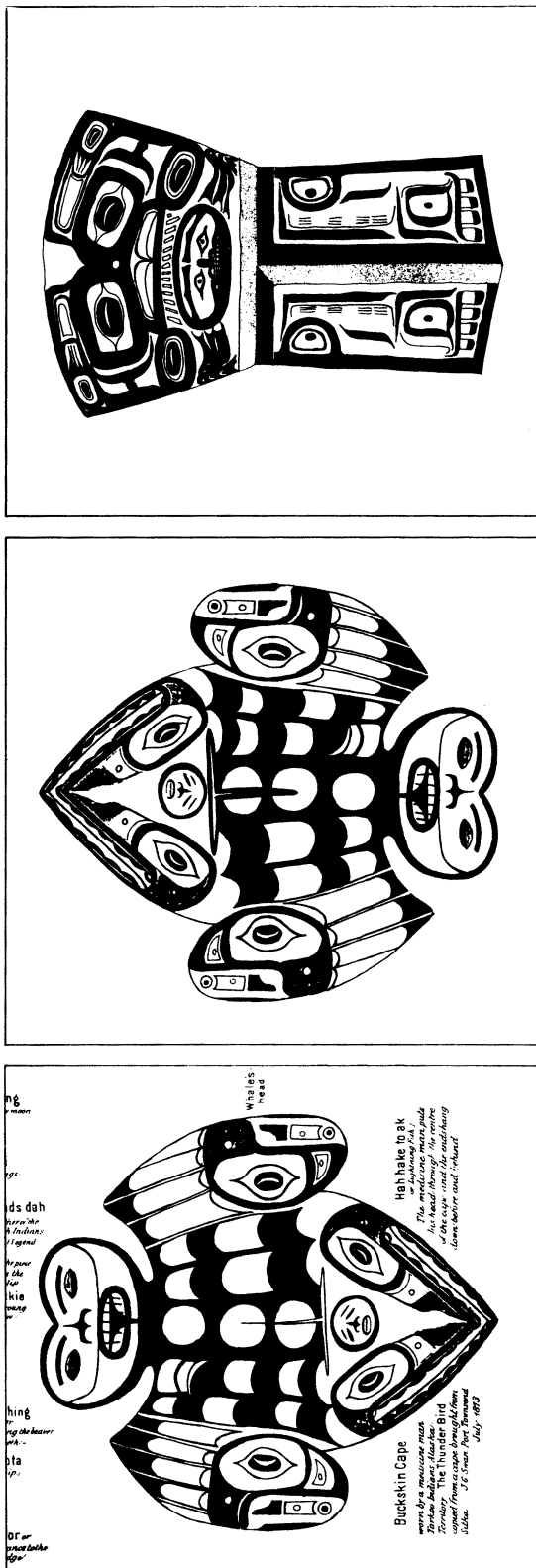
A mantle said to have belonged to a shaman was collected by Swan in 1873. Portraying a thunderbird, it was worn with the head hanging down over the breast, the wings over the arms, and the tail hanging behind, in a mode appropriate to shaman bird imagery. Although this garment is shaped like a Copper if the arm pieces are excluded, more striking similarity is evident in the composition of the motifs, including the presence of the spirit face (Fig. 66). Of course the dates of collection suggest that this particular Copper and the mantle could have been

⁵Whetstones, like copper, were believed to stop everything or to cut off life, and served as protection against malevolent spirits.

⁶Neckpieces said to be worn by shamans are on exhibit in the Northwest Coast Hall, American Museum of Natural History.



65. Ceremonial mantle with crest animal. Collected by Louis Shotridge, 1917, possibly from Klukwan. Painted designs represent crest animal of wearer, worn with head and forelimbs on chest, tail and fins or wings on back (drawing of illustration in Stone 1973:223, Fig. 277)



66. Comparison of mantle and Copper. Thunderbird and *Han hake to ak* (lightning fish) designs on buckskin mantle worn by shaman. Acquired by Swan at Sitka. "The medicine man puts his head through the centre of the cape and the ends hang down before and behind" (drawings of illustration in Swan, 1874: Pl.2 and of the Smithsonian Copper; see Figures 4 and 56).

created at about the same time. Yet taking into consideration certain parallels between mantle and Copper such as overall configuration, the similarity of design elements and their placement and composition, connotations of supernatural power, the use of the mantle at ceremonial occasions as evidence of supernatural presence, and probable links to ancient schema it seems possible to claim mantles as one element in a possible complex of antecedents to Coppers. The evidence is insufficient to prove such a claim, but can be further buttressed by additional analysis.

Discussion

Coppers were called breastplates (Colnett, Wrangell) or shields by many Europeans possibly because of their configuration, but also because they were seen as protective instruments (Colnett). In some totem poles and other carved representations Coppers are held somewhat like a child, but a common position in others is in front of the breast, either for display or possibly protection. Ancient Siberian breastpieces seem to have had dual functions as both protectors against supernatural forces and loci sensitive to the acquisition of supernatural power. Breast locus seems similarly an important focal point in the Northwest Coast: protective copper amulets worn on the breast by children seen by Colnett, Coppers pressed to the breast of Tsimshian children, frog breast fat, spirit faces at about breast level on Coppers and other objects, and copper collars worn on the breast and conceived to be protective (Moldy Forehead was protected by his copper collar). The imagery and conceptions pertaining to mantles and copper collars, both worn on the breast, were appropriate for enhancing a piece of copper sheet, the substance of which had similar meanings.

At the point of invention, three elements—the introduced copper trade sheet, the mantle, and the copper collar—seem to have been involved. A possible scenario for the invention of Coppers follows:

Taking advantage of the easily accessible ready-made copper sheet, the Tlingit transformed it into a status emblem equivalent to a copper collar. The copper content of trade sheet, with connotations of supernatural power, made it usable in instruments known to the Indians and formerly made of native copper such as daggers, bracelets, and other ornaments including possibly copper collars. However, it would probably have been difficult to make copper collars of thin trade sheet. Facing such laborious work and possible failures the problem then became how to transform a material which was easily accessible and widely traded into a chiefly emblem equal to a copper collar. It is likely that the configuration of the trade sheet more or less dictated the form of the Copper. The mantle, similar in overall outline and proportion to the trade sheet, and at the same time similar in connotation to copper collars, may have triggered the idea of the Copper's form. The form itself

though not common was not novel and was therefore acceptable, but the mantle's ancient motifs and their composition were the elements essential for validating Coppers as significant chiefly emblems. The genius of the Copper's invention resided in adapting the copper sheet to a known shape and ornamenting it with motifs linked to ancient visual forms and concepts. The validation of the Copper's value, its formal and iconographic identifiability, and the facility of its manufacture as compared with copper collars, all probably recommended its substitution in ceremonies of succession where, like collars, it was passed on to heirs. The shape, though not unfamiliar as noted above in the discussion of mirrors, was sufficiently arresting to make Coppers instantly recognizable. The ancient motifs plus the generally held beliefs pertaining to the supernatural connotations of the copper substance made possible the Copper's almost immediate adoption by the Haida and possibly somewhat later the Tsimshian. It had become an important symbolic entity in itself at the time of its adoption by the Kwakiutl and subsequent modification by them. Acquired later by the Bella Coola it was further modified in use and somewhat in meaning.

The T-form remains unexplained. The T-form opening on the Swan mantle is suggestive, but the bird breast bone of the ancient breastpiece seems more closely related to meanings of spine (*axis mundi*) and bones of the chief. Actually, the T seems technologically motivated with meanings subsequently attached. As Keithan pointed out, the T resembles the shaping of projectile points for attachment to spears or arrows (1964), or perhaps axe handles. If, as described above, Coppers were supported on stakes or masts like trophy heads, or for other purposes, an indentation such as the T form would have been essential. Was the Copper described by Lisiansky carried like a standard? The variability in T forms, especially the crudely made T's on some small apparently early Haida Coppers, suggests that a T was created first for practical use and later standardized as part of the total aesthetic form of the Copper. In any case, the T form was included as an essential ingredient and became a significant identifying and symbolic element.

The unique and complex form of a Copper almost precludes the possibility of a single antecedent. Combining of design elements was the usual method of creating art objects among the northern Northwest Coast people (Holm 1965). The motifs of totem poles and boxes were differentially selected from a repertoire of familiar images with meanings that could be variably interpreted according to occasion or object. Assembling in one design elements of such disparate objects as sheet copper, chief's or shaman's mantle, T form, and ancient motifs in order to create an object equivalent to a copper collar would therefore not have been unusual for a Tlingit or Haida artist. Similar to other Northwest Coast creations the complex design of a Copper and its variable symbolism permits specific and at the same time almost unlimited interpretation.

V. Conclusions

Considering all the evidence, it is unlikely that Coppers were made of native copper before contact. Lacking stimulus, the Ahtna and Tlingit, who were sufficiently competent to have made native copper Coppers, would probably have adhered to traditional forms. Despite the amount and purity of Copper River copper, given the metal working capacity, it would have been more difficult to make a large or even medium Copper of native copper than copper collars. Moreover, it seems likely that if Coppers had existed before contact, they would have had wider distribution and been incorporated in closely associated societies such as the Nootka.

The concepts and social behavior of the Northwest Coast people were essential to the Copper's invention and to its subsequent adoption and use. The value attributed to the substance of copper, the familiarity with copper metal and relatively advanced copper-working technology among the Tlingit, and the wearing of copper ornaments by chiefly people as symbols of status and wealth were the salient factors. Copper was used only for ornaments and specific, usually valuable, instruments such as daggers. This limited use was of course tied to the rarity of the metal before contact.

Almost from the beginning of contact, copper came to the Northwest Coast in quantities and forms and with greater ease than were previously known by the Northwest Coast people. The influx of copper sheet in large amounts almost simultaneously with the arrival of copper-clad ships must have had a profound impact on Northwest Coast people. In whatever form, they generally viewed copper as valuable and desirable. But aside from Coppers the large amounts of readily accessible copper did not inspire new and more and common uses for the metal. A few utilitarian articles such as copper kettles were adopted, but copper metal continued to be used by chiefly people as ornament, emblem, and instrument of their status.

A number of factors point to the Tlingit as the plausible inventors of Coppers. They had sufficient knowledge and competence to work the metal. Early examples were seen among the Tlingit. Tlingit Coppers are more consistent in appearance and in quality than other Coppers which suggests that they were designed to fulfill a specific purpose and continued in this role without major modifications. In Tlingit society Coppers played their principal role at succession ceremonies. The mode and use of coppers at the succession ceremonies of the Haida and Tsimshian are similar to those of the Tlingit and also with some

modifications to those of the Kwakiutl and Bella Coola. Coppers appeared to have remained rare chiefly emblems tied with succession for some time. But judging by Lisiansky's notes about "spurious" Coppers, one has to assume that Coppers of lesser value were used among the Tlingit almost from the beginning as well. The control of introduced copper sheet and its use in the acquisition of animal skins to trade with Europeans, a pattern which was well established among Tlingit chiefs, seems to be the model for the similar use of Coppers in the acquisition of blankets for potlatching. Transforming copper sheet into Coppers having particular significance would, of course, have enabled chiefly peoples to maintain control over the supply of introduced copper sheet. Once the form was established, undecorated Coppers could have been used to accumulate wealth for potlatch exchanges and as potlatch gifts for distribution, while Coppers embellished and made identifiable with ancient ancestral motifs were reserved for succession ceremonies.

The amount and type of copper introduced were the most important European contributions to the invention and development of Coppers, but other elements probably had certain subtle influence. New forms of trade as it was pursued by the European traders and novel objects introduced deliberately or inadvertently such as the grenadier's emblem and the Russian ornaments and plates brought by Ismailov may have added to the concepts pertaining to Coppers and their use.

Coppers appear to have been transmitted with their succession function almost at once to the Haida, who used them similarly to the Tlingit. There is no evidence on early Tsimshian Coppers, but the Tsimshian probably acquired them from the Haida. The Tsimshian may have been the instigators of the breaking and distribution of Coppers.

Coppers seem to have been adopted by the Kwakiutl from the Tsimshian complete with both Tlingit succession and Tsimshian breaking functions. The Kwakiutl added the practice of reconstructing Coppers after their breaking and distribution. They also institutionalized and ritualized the sale of Coppers. Because of the similarity of Tsimshian and Kwakiutl wedding ceremonies it is difficult to determine who was the first to employ Coppers at this occasion. Since, the Kwakiutl ceremony appears to be more socially essential, it may be the more fundamental. Indeed it has been proposed that a Copper was a direct replacement for the bride's *gyisteral* in the Kwakiutl marriage ceremony (Lévi-Strauss quoted by MacDonald: pers. comm.).

It is probable that the Kwakiutl were the source for Bella Coola Coppers, which are very similar to those of the Kwakiutl in appearance. A Bella Coola Copper has a very specific and fundamental function at a chief's memorial ceremony with certain related functions involving the Copper's reconstruction and exchange. The meaning of the Copper in the Bella Coola ceremony seems to shift from signifying chiefly supernatural power, as at Tlingit and other succession ceremonies, to a

concept of activating reincarnation that is more comparable to Salish spirit board activation.

Before 1850 it is likely that Coppers were rather rare and that succession and possibly potlatch exchange remained the principal uses for coppers among these societies. With the end of the maritime fur trade, the consolidation of the Tsimshian, Haida, and Kwakiutl into reserve areas, and the resulting changes in these societies, Coppers were called upon to play greater and more varied roles. Their increased use may have first occurred among the Haida, who having suffered the greatest loss with the end of the sea otter trade, may have made greater use of Coppers as wealth goods. After their concentration near Fort Simpson and the resulting more complex society, the Tsimshian devised other uses for Coppers which enhanced the power of their chiefs.

The increased warring competition that occurred toward the latter half of the nineteenth century may have stimulated competitive use and destruction of Coppers in rivalrous situations among all Copper owning peoples except the Bella Coola. Coppers seemed to have been used also to prevent killing. Various factors such as population depletion and the accessibility of cheaper, more durable sheet copper may have encouraged the substitution of Coppers for humans and wealth goods in destructive practices.

Coppers themselves changed along with their adaptations in use and meaning. Early Coppers were probably about medium size, finely finished, and quite rare. A few small Coppers, some rather crudely made, may also have existed. The variable use of Coppers encouraged different qualities in Coppers: the Tlingit and Haida, who did not usually divide Coppers, may have preferred heavy sheet for its durability which enabled Coppers to survive multiple potlatch exchanges and discarding into the sea, and provided suitable material for fine decorative motifs. In contrast, the thinner Copper sheet, which was easily broken, distributed, reconstructed, and repainted was more suitable for the purposes of the Kwakiutl.

Like other inventions, Coppers surpassed their possible antecedents. Their significance and utility in the five societies were greater than those of chiefs' and shamans' mantles, ancient motifs, copper sheet, and even copper collars. One can say that they are prime objects; to reiterate part of Kubler's definition: "their character is not explained by their antecedents and their order in history is enigmatic" (1962:39; see Preface above). Coppers, like other symbolic instruments such as axes and swords, had both symbolic and utilitarian significance. They were not only emblematic of chiefly power, providing with greater concision a comprehensive range of messages once possibly communicated separately by daggers, hats, copper collars, and other symbolic paraphernalia, but were also instruments of its consolidation. Unlike axes and swords and other such instruments, they are mysteriously shaped entities in themselves with multiple references that resonate with other articles and beings, partic-

ularly in nature. Such ambiguous, variable meanings, which are characteristic of northern Northwest Coast art, can also be very specific. The combination of the ambiguity and enigmatic quality of a Copper's shape permitted many connotations and references, and at the same time, its adaptation to specific but variable situations in each of the five societies.

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